COBHAM

Cobham Tactical Communications and Surveillance

COFDM - Video, Audio Telemetry and IP Products

Product Catalogue

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THE QUEEN'S AWARDS FOR ENTERPRISE: INTERNATIONAL TRADE 2009

THE QUEEN'S AWARDS FOR ENTERPRISE: INNOVATION 2010

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SOLO4 – Receiver

SOLO4 Receiver without IP Interface

SOLO4 Receiver with IP Interface

The SOLO4 Receiver from Cobham is a feature–rich diversity input digital video receiver, equipped with two antenna inputs normally connected to external down–converters to allow antenna placement remote from the receiver housing. The SOLO4 Receiver operates a maximum ratio combining digital diversity, ensuring video is recovered free from distortions typically associated with fading and multipath. The SOLO4 Receiver is compatible with multiple COFDM transmission formats from 8MHz DVB–T to the unique 2.5 and 1.25MHz narrow band modes proprietary to Cobham. Incorporating MPEG2 and MPEG4 video decoding, the SOLO4 Receiver is suitable for all mission types, and has Cobham technology at its core.

The SOLO4 Receiver is equipped with video, two voice and data channels, and is designed for easy integration into command vehicle, briefcase or central receive applications.

Security of transmission is ensured by the use of ABS encryption as standard or, for greater security, optional AES128/256 bit encryption algorithms, subject to export controls.

Features:

- Fully featured 8/7/6/2.5MHz (1.25MHz optional)
- Maximum ratio combining antenna diversity for fade and multipath elimination
- Comprehensive on screen display (OSD) diagnostics for link analysis, including spectrum analyser
- Optional IP interface board for IP streaming and network connection
- Very low delay video operation for real time applications
- Optional 4–way diversity.

Specification:

Down-converters	
RF In	TNC
UHF Out	TNC

Input	
UHF Input 1	TNC
UHF Input 2	TNC
Power	4 pin OB Lemo

Output	
Composite Video	BNC
Stereo Line Level Audio	Lemo
Chaining Interface	Lemo
RS232 Data	Hirose
RS232 Control	Hirose

RF	
Frequency Bands	5.62 to 5.9GHz with DCB-550600, 4.5 to 5GHz with DCB-450500, 3.1 to 3.4GHz with DCB-300350, 2 to 2.5GHz with DCB-200250, 1.5 to 2GHz with DCB-150200, 1 to 1.5GHz with DCB-100150, 575 to 675MHz, 470 to 520MHz, 340 to 470MHz
Tuning Steps	250KHz

Modulation	
DVB-T Bandwidth	8/7/6MHz
DVB-T Guard	1/32, 1/16, 1/8, 1/4
DVB-T FEC	1/2, 2/3, 3/4, 5/6
DVB-T Modulation	QPSK, 16QAM, 64QAM
SOLO Bandwidth	2.5MHz (1.25MHz optional)
SOLO Guard	1/16, 1/8
SOLO FEC	1/3, 2/3
SOLO Modulation	QPSK, 16QAM
Sensitivity	-95 to -104dB

Video	
Line Standard	PAL/NTSC
Resolution	704, 528, 480, 352
Coding Mode	MPEG2 (MPEG4 optional)
Delay	43ms to 120ms depending on mode
Frame Rate	Full/Half/Quarter/Eighth (selectable)

Audio	
Output	Line Level
Sample Rate	32KHz, 16KHz, 8KHz and MPEG L1 and L2 48KHz
Bits per Sample	12 or 8 bit

Data Interface	
RS232 Data Output	1K2 to 115K2 baud switchable

Encryption	
Format	ABS (standard) AES128/256 (optional)

Control	
Remote Control	RS232 Control from PC GUI Application
Local Control	Front Panel 8 channel select, RF on/off, Range mode, Lock, Alarm
On Screen Display	Spectrum, RX SNR, RX Power

Physical	
Dimension Base Unit	L 200mm, W 152mm, H 50mm
Base Unit inc. IP Interface	L 175mm, W 200mm, H 66mm
Down-converter	L 100mm, 45mm Diameter
Weight Base Unit	2.2kg
Down-converter	300g

Power	
DC Input	9 to 16V Reverse Polarity Protected
Power Consumption	10W depending on mode

Environment	
Temperature Range	-10 to +50 deg C

Accessories Supplied
2 x Down-converter RX TNC Cable 3m, 1 x BNC Video Lead 3m
1 x PSU12 Power Supply, 1 x 3rd Generation Man-worn Control Cable
1 x Telemetry Audio Out Cable OB(FGA) Lemo-phono 3m
1 x Data Cable (optional)

Product Code:

SOL4RX
SOL4RXUP - 2.5MHz TO MPEG4 1.25MHz UPGRADE

SOLO4 – Robust Receiver

The Robust SOLO4 Receiver from Cobham is a feature–rich, diversity input digital video receiver, equipped with two antenna inputs and internal down–converters (excluding UHF) to allow direct antenna connection. The Robust SOLO4 Receiver operates a maximum ratio combining digital diversity, ensuring video is recovered free from distortions typically associated with fading and multipath. The Robust SOLO4 Receiver is compatible with multiple COFDM transmission formats from 8MHz DVB–T to the unique 2.5 and 1.25MHz narrow band modes proprietary to Cobham. Incorporating MPEG2 and MPEG4 video decoding, the Robust SOLO4 Receiver is suitable for all mission types with Cobham technology at its core.

The narrow bandwidth modulation offers unprecedented spectral efficiency, while also increasing the system sensitivity and therefore range. The Robust SOLO4 Receiver has comprehensive on screen display (OSD) diagnostic capability to show link quality and spectrum, enabling users to optimise transmission performance with one video, two voice and data channels.

SOLO4 Robust Receiver

Security of transmission is ensured by the use of ABS decryption as standard or, for greater security, optional AES128/256 bit decryption is available, subject to export controls.

The Robust SOLO4 Receiver is supplied in a sealed IP 67 rated aluminium enclosure.

Features:

- Fully featured 8/7/6/2.5MHz (1.25MHz option)
- Maximum ratio combining antenna diversity for fade and multipath elimination
- Comprehensive OSD diagnostics, including spectrum analyser
- Internal down–converters (Excluding UHF)
- Internal AES128/256bit decryption (option)
- IP interface board for streaming and networking (option)
- Very low video delay for real time applications.

Specification:

Input	
UHF Input 1	TNC
UHF Input 2	TNC
12V DC In	3 pin amphenol

Output	
Composite Video & Audio	7 pin amphenol
RS232 Control & Data	7 pin amphenol
Ethernet Port	4 pin amphenol

RF	
Frequency Bands	50 to 850 MHz, 1.00 to 1.40 GHz 2.285 to 2.65 GHz, 2.70 to 2.90 GHz 3.10 to 3.40 GHz
Tuning Steps	250 KHz

Modulation	
DVB-T Bandwidth	8/7/6MHz
DVB-T Guard	1/32, 1/16, 1/8, 1/4
DVB-T FEC	1/2, 2/3, 3/4, 5/6
DVB-T Modulation	QPSK, 16QAM, 64QAM
SOLO Bandwidth	2.5MHz (1.25MHz optional)
SOLO Guard	1/16, 1/8
SOLO FEC	1/3, 2/3
SOLO Modulation	QPSK, 16QAM
Sensitivity	-95 to -105dB

Video	
Line Standard	PAL/NTSC
Resolution	704, 528, 480, 352
Coding Mode	MPEG2 (MPEG4 optional)
Delay	43ms to 120ms depending on mode
Frame Rate	Full/Half/Quarter/Eighth (selectable)

Audio	
Output	Line Level
Sample Rate	32KHz, 16KHz, 8KHz
Bits per Sample	12 or 8 bit

Data Interface	
RS232 Data Output	1K2 to 115K2 baud switchable

Encryption	
Format	ABS (standard) AES128/256 (optional)

Control	
Remote Control	RS232 Control from PC GUI Application
Local Control	Front Panel 8 channel select, RF on/off, Range mode, Lock, Alarm
On Screen Display	Spectrum, RX SNR, RX Power

Physical	
Dimension Base Unit	L 240mm, W 147mm, H 43mm

Power	
12V DC In	10 to 16V

Environment	
Temperature Range	-20 to +50 deg C
Sealing	IP67

Associated Equipment:

The following devices are also part of the system	
SOL4TXR	Robust SOLO4 Transmitter
SOLAMPR1W	Robust Clip-on 1W amplifier

Product Code:

SOL4RXR-005085
SOL4RXR-100140
SOL4RXR-225265
SOL4RXR-270290
SOL4RXR-310340
SOL4RXUP UPGRADE ADDS 1.25MHz UNB AND MPEG4

SOLO4 – Miniature Robust Receiver

The Miniature Robust Receiver from Cobham is a fully portable COFDM digital diversity receiver. The unit utilises the latest miniature receiver technology shared with the NanoVue unit.

The Miniature Robust Receiver incorporates a digital diversity receiver with a robust and compact IP67 enclosure. It is ideal for use as a confidence or monitoring receiver for tactical use, or for long term covert surveillance, perimeter security and fire control where permanent installations require weatherproof housing.

Control is achieved through the Ethernet port by connecting the unit to an IP network using the Ethernet interface provided, or via the Cobham Field Controller product.

The Miniature Robust Receiver is ideal for those seeking extended battery duration in tough environments with high technology receiver performance.

The product can run from any 9–16V DC supply capable of supplying 2A.

SOLO4 Miniature Robust Receiver

Features:

- Fully featured 8/7/6/2.5/1.25 MHz & 625KHz demodulation
- Maximum ratio combining antenna diversity
- Internal recording to SD card
- Compact weatherproof housing to IP67
- Minature Rx in discreet enclosure
- Rugged Amphenol connectors
- Controllable via Field Programmer or Ethernet
- Low current drain, typically 8W.

Specification:

Input	
RF Input from Antenna 1	TNC
RF Input from Antenna 1	TNC
Power	As below
Ethernet	As below

Output	
Control	D Type (F) & 5 pin Lemo (FCON)
Data	D Type (F)
Headphone	Female Socket
Composite Video	Female BNC
Stereo line level audio	Pair Male Plugs

Connectors	
Power	3-Pin Military 62GB connector
Ethernet	4-Pin Military 62GB connector
Outputs	13-Pin Military 62GB connector

Options
Product supplied with the above 3 cables for each unit. Unit can be controlled using the FCON product or via PC application.

RF	
Frequency Bands	2.17 to 2.5GHz
Tuning Step Size	250kHz

Modulation	
DVB-T Bandwidth	8/7/6MHz
DVB-T Guard	1/32, 1/16, 1/8, 1/4
DVB-T FEC	1/2, 2/3, 3/4, 5/6
DVB-T Modulation	QPSK, 16QAM, 64QAM
DVB-T Sensitivity	-95 dBm
Narrow Band Bandwidth	2.5/1.25 MHz
Narrow Band Guard	1/8, 1/16
Narrow Band FEC	1/3, 2/3
Narrow Band Modulation	QPSK, 16QAM
Narrow Band Sensitivity	-95 to -104dBm

Video	
Line Standard	PAL/NTSC
Resolution	704, 528, 480, 352
Coding Mode	MPEG2/MPEG4
Delay	80 ms

Audio	
Output	Line Level (standard), Headphone (optional)
Sample Rate	48KHz
Format	MPEG Audio 384 to 64kb/s

Control	
Local	Field Programmer
Remote	Ethernet

Physical	
Dimension Base Unit	L 190mm, W 100mm, H 30mm
Weight	650g

Environment	
Temperature Range	-10 to +50 deg C
Sealing	IP67

Product Code:

MRRX-100150
MRRX-217250
MRRX-450500

SOLO4 – MicroVue Receive Case

The Cobham MicroVue is a briefcase receiver/recorder package for tactical video surveillance operations. Additionally, it can be used as a remote video receiver for UAV and UGV applications.

The MicroVue combines a Cobham SOLO Receiver with two diversity down–converters and two antennae into one rapidly–deployable briefcase kit. An 8.4" colour LCD screen is mounted in the lid, while a comprehensive touch screen control panel is supplied for control and set up.

The MicroVue has Cobham technology at its core and is supplied with AC, DC and internal battery power. For unusual installations, the internal antennae and down–converters can be bypassed and external ones fitted instead. As standard, the MicroVue is supplied without a recorder, but can optionally be fitted with an FFV based hard disk recorder, or an alternative (available on request).

The Cobham narrow bandwidth modulation offers unprecedented spectrum efficiency, while also increasing the system sensitivity and, therefore, range. The MicroVue has comprehensive On Screen Display diagnostic capability to show link quality and spectrum and is equipped with video, two voice and data channels. Security of transmission is ensured by the use of Standard ABS encryption or, for greater security, the optional AES128– or 256–bit encryption algorithms.

Features:

- Comprehensive demodulation 8/7/6/2.5 and 1.25MHz (optional)
- Maximum ratio combining antenna diversity for fade and multipath elimination
- Lid mounted antennae
- 8.4" colour monitor in lid
- AC, DC, internal battery operation
- Batteries recharged internally
- Internal recorders available as options
- Comprehensive On Screen Display (OSD) diagnostics for link analysis, including spectrum analyser
- 5.5" touch screen in base for device configuration
- Headphone output
- Internal AES128 or 256 encryption
- Optional 160GB hard disk recorder with playback on lid monitor

Specification:

Input	
RF Input 1	Antenna 1
RF Input 2	Antenna 2
UHF RF Input 3 (Bypass)	TNC
UHF RF Input 4 (Bypass)	TNC
Power (12V DC)	Lemo
Power (mains)	IEC
Composite Video	BNC
PC Control Input	Lemo
Audio Input	Phono

Output	
Composite Video	BNC
PTZ Control and Umbilical Video (optional)	Lemo
Line Level Audio	Phono
Headphone Audio (with volume control)	Audio Jack
Control Output	Lemo
Chaining	Lemo
Data	Lemo

Antennae	
4dBi Colinear (supplied)	TNC Mount
RF Bypass (user's own)	TNC Input

RF	
Frequency Bands	4500 to 5000MHz, 2170 to 2500MHz, 1000 to 1500MHz, 420 to 470MHz (340 to 470MHz with external antenna) 340 to 390MHz (340 to 470MHz with external antenna)
Tuning Steps	250KHz

Modulation	
Receive Modes Narrowband:	
Mode 1 - Short Range	2.5MHz, 16QAM, FEC2/3, Sensitivity -95dBm
Mode 2 - Normal Range	2.5MHz, QPSK, FEC2/3, Sensitivity -99dBm
Mode 3 - Long Range	2.5MHz, QPSK, FEC1/3, Sensitivity -102dBm
Mode 4 - Ultra Long Range (optional)	1.25MHz, QPSK, FEC1/3, 600kb/s, Sensitivity -105dBm
Receive Modes Wideband:	
DVB-T COFDM Receive	Bandwidth 8/7/6MHz
FEC	2/3, 5/6, 7/8

Video	
Line Standard	PAL/NTSC
Resolution	704, 528, 480, 352
Coding Mode	MPEG2 or MPEG4 (optional)
Delay	43ms to 1sec depending on mode
Frame Rate	Full/Half/Quarter/Eighth (optional)

Audio	
Line Level Output	Phono
Sample Rate	32KHz, 16KHz, 8KHz or MPEG L2 48KHz
Bits per Sample	12 or 8 bit

Data Interface	
RS232 Data Output	1K2 to 115K2 baud switchable

Encryption	
Format	ABS (standard) AES128/256 selectable (optional)

Control	
Remote Control	RS232 Control from PC GUI Application
Touch Screen Control	All features Backlight off selectable to minimise light emission
On Screen Display	Spectrum, RX SNR, RX Power

Physical	
Dimension	L 350mm, W 260mm, H 160mm
Weight	5kg

Power	
AC Input (8A fused)	110/240V
DC Input (8A fused)	11 to 16V
Battery Backup (internal fuse)	3 hours operation

Environment	
Operating Temperature	-10 to +50 deg C (not charging batteries)
Operating Temperature	+10 to +40 deg C (charging batteries)
Storage Temperature	-20 to +60 deg C

Accessories Supplied
1 x Lead, 2 x Phono - 2 x Phono 1m, 1 x RS232 Cable Lemo-DSUB9 3m
1 x BNC Video Lead 3m, 1 x MicroVue External 12V DC In
1 x MicroVue/Solcon External Control Cable (Lemo to Lemo)
1 x MicroVue/Solcon External Control Cable (Lemo to Hirose)
1 x MicroVue Cable Carry Case, 1 x MicroVue DVR Carry Case (DVR optional)

Product Code:

SOL4MIV-034047
SOL4MIV-057067
SOL4MIV-100140
SOL4MIV-165200
SOL4MIV-200250
SOL4MIV-230270
SOL4MIV-300350
SOL4MIV-450500
SOL4MIV-550600
RECORDER OPTIONS: SOL4DVR

SOL4DVR – DIGITAL RECORDER SPECIFICATIONS
Scalable motion JPEG compression, Analogue video and Stereo Audio I/P,
Analogue video and Stereo Audio O/P for live view and playback,
550 TV lines, 720 x 576 (PAL) – 720 x 486 (NTSC),
Time/Date Stamp and Character Display; Time Lapse, Loop Record capability,
USB file download, Internal 160Gb HDD, Solid state memory option

SOLO4 – MicroVue Commander Receive Case

The MicroVue Commander is a briefcase receiver/recorder package for tactical video surveillance operations, incorporating a PTZ transmit control function. The MicroVue Commander is designed to be used in conjunction with the ClearCam deployable camera in scenarios where remotely deployed PTZ cameras are required. It can also control standard Visca and Pelco cameras via a 'Cobham' telemetry receiver. The MicroVue combines a Cobham SOLO Receiver with two diversity down converters and two antennae, with a telemetry radio into one rapidly deployable briefcase kit.

An 8.4" colour LCD screen is mounted in the lid. The MicroVue is supplied with comprehensive touch screen control panel for control and setup, as well as AC, DC and internal battery power. For unusual installations, the internal antennae and down converters can be bypassed and external antennae and down converters fitted.

The built in PTZ control panel includes all the usual PTZ functions, including 4 channel camera select, pan, tilt and zoom.

As standard, the Cobham MicroVue is supplied without a recorder, but can optionally be fitted with an FFV based hard disk recorder. Other recorders are available on request.

The Cobham narrow bandwidth modulation offers unprecedented spectrum efficiency, while also increasing the system sensitivity, and, therefore, range.

The MicroVue has comprehensive On Screen Display diagnostic capability to show link quality and spectrum and is equipped with video, two voice and data channels. Security of transmission is ensured by the use of Standard ABS encryption or, for greater security, the optional AES128– or 256–bit encryption algorithms.

Features:

- Comprehensive Demodulation 8 / 7 / 6 / 2.5 and 1.25MHz (optional)
- Maximum Ratio Combining antenna diversity for fade and multipath elimination
- Lid mounted antennae
- 8.4" colour monitor in lid
- Built in telemetry radio and PTZ control panel for remote camera control
- 110V and 240V AC, DC and internal battery operation
- Batteries recharged internally
- Internal recorders available as options
- Comprehensive On Screen Display (OSD) diagnostics for link analysis, including spectrum analyser
- 5.5" touch screen in base for device configuration
- Headphone output
- Internal AES 128 or 256 encryption
- Optional FFV based hard disk recorder with playback routed back to lid monitor
- 458, 868MHz telemetry for UK
- 903MHz telemetry for Americas
- 433MHz special available for Europe.

Specification:

Input

RF input 1	Antenna 1
RF input 2	Antenna 2
UHF RF input 3 (Bypass)	TNC
UHF RF input 4 (Bypass)	TNC
Power (12V DC)	Lemo
Power (mains)	IEC
Composite video	BNC
PC control input	Lemo
Power (mains)	IEC

Antennas

Receive Antenna	4dBi Colinear TNC mount flexible
Transmit Antenna	1/2λ SMA Omni

Output

site video	BNC
Telemetry transmit	BNC
Line level audio	Phono
Headphone audio (with volume control)	Audio jack
Control output	Lemo
Chaining	Lemo
Data	Lemo

Antennas

4 dBi Colinear (supplied)	TNC mount
RF Bypass (user's own)	TNC input

RF

Input Frequency bands	2170 to 2500MHz/1000 to 1500MHz (model dependant)
Output Frequency	458MHz, 868MHz or 903MHz (model dependant)
Tuning Steps	250kHz

Modulation

Receive modes (Narrow band)	
Mode 1: Short range	2.5MHz 16QAM FEC2/3 Sensitivity -95dBm
Mode 2: Normal range	2.5MHz QPSK FEC2/3 Sensitivity - 99dBm
Mode 3: Long range	2.5MHz QPSK FEC1/3 Sensitivity - 102dBm
Mode 4: Ultra long range	1.25MHz QPSK FEC1/3 600kb/s Sensitivity -105dBm (optional)
Receive modes (Wide band)	Bandwidth 8/7/6 MHz
DVB-T COFDM receive	FEC ½, 2/3, ¾, 5/6, 7/8
Transmit modes	COFDM 25kHz QPSK 100mW

Video

Line standard	PAL/NTSC
Resolution	704, 528, 480, 352
Coding mode	MPEG2 or MPEG4 (optional)
Delay	43ms to 1sec depending on mode
Frame rate	Full/Half/Quarter/Eighth (optional)

Audio

Line level output	Phono
Sample rate	32kHz, 16kHz, 8kHz or MPEG L2 48kHz
Bits per sample	12- or 8-bit

Data Interface

RS232 Data output	1k2 to 115k2 baud switchable

Encryption

Format	ABS (standard), AES128/256 selectable (optional)

Control

Remote control	RS232 control from PC GUI application
Touch screen control emission	All features, Backlight off selectable to minimise light
On screen display	Spectrum, Rx SNR, Rx Power

PTZ Control

Button panel Tilt	Includes Camera Select, zoom, Day Night Select, Pan and

Physical

Dimension	L 350mm W 260mm H 160mm
Weight	5kg

Power

AC input (2.5A fused)	110/240V
DC input (8A fused)	11-16V
Battery backup (internal fuse)	3 hours operation

Environment

Temperature Range	-10 to +50 deg C (operating) +10 to +40 deg C (charging batteries)

Product Code:

SOL4MIVC-125045	1 to 1.5GHz with 458MHz telemetry
SOL4MIVC-185045	1.68 to 1.85GHz with 458MHz telemetry
SOL4MIVC-225045	2 to 2.5GHz with 458MHz telemetry
SOL4MIVC-225086	2 to 2.5GHz with 868MHz telemetry
SOL4MIVC-225090	2 to 2.5GHz with 903MHz telemetry
SOL4DVR	Recorder option

SOL4DVR – DIGITAL RECORDER SPECIFICATIONS

Scalable motion JPEG compression, Analogue video and Stereo Audio I/P,
Analogue video and Stereo Audio O/P for live view and playback,
550 TV lines, 720 x 576 (PAL) – 720 x 486 (NTSC),
Time/Date Stamp and Character Display, Time Lapse, Loop Record capability,
USB file download, Internal 160Gb HDD, Solid state memory option

SOLO4 – MultiVue Receive Case

The MultiVue is a briefcase receiver package, with Cobham technology at its core, for team–based tactical video surveillance operations. It will simultaneously decode and display four separate digital video channels, allowing its operator to observe activities in four different locations or four views of one location. Typical applications include tactical surveillance teams and first responder and emergency teams. Equipped with dual diversity antennae inputs, the MultiVue ensures excellent video reception quality.

The MultiVue combines four Cobham SOLO Receivers with two diversity down–converters and two antennae into one rapidly deployable briefcase kit. A comprehensive touch screen interface is provided for user control. A colour monitor is mounted in the lid and can be user–controlled to display a quad image, or any one of the four individual images. Video and audio outputs are provided at the rear of the unit for recording, while local audio monitoring is provided via headphone outputs. The MultiVue capabilities can be extended with optional IP streaming, and optional microwave relay retransmission. The unit can be AC or DC powered. All cables are included.

The Cobham narrow bandwidth modulation offers unprecedented spectrum efficiency, while also increasing the system sensitivity and, therefore, range.

The MultiVue has comprehensive On Screen Display diagnostic capability to show link quality and spectrum and is equipped with video, two voice and data channels. Security of transmission is ensured by the use of optional AES128/256 bit encryption algorithms.

Features:

- Four simultaneous video reception and viewing
- Comprehensive demodulation 8/7/6/2.5 and 1.25MHz (optional)
- Maximum ratio combining antenna diversity for fade and multipath elimination
- Lid mounted antennae
- Colour monitor in lid with quad or individual viewing
- User touch screen control interface
- Optional IP streaming and microwave relay
- Comprehensive On Screen Display (OSD) diagnostics for link analysis, including spectrum analyser
- Internal AES128/256.

Commander upgrade:

- Integral triple axis joystick for control of PTZ camera
- Telemetry 100mw Transmitter able to address multiple cameras
- Camera position preset storage
- Multiple PTZ protocols supported.

Specification:

Input	
Local Antenna Inputs	TNC
External UHF Inputs	TNC
RS232 Control	9 Way D-sub
Ethernet	RJ45
AC Supply	IEC
DC Supply	4 Pin XLR

Output	
Four Composite Video	BNC
Four S-Video	4 pin MiniDIN
Four Audio Pairs	5 pin Lemo
Monitor Composite Video	BNC
Monitor S-Video	Jack Socket
Headphone	Audio Socket

Antennae	
Lid Mounted Antennae	2dbi Omni

RF	
Frequency Bands	2170 to 2500MHz, 1000 to 1500MHz, 575 to 675MHz, 340 to 470MHz (others on request)
Tuning Steps	250KHz

Modulation	
DVB-T Bandwidth	8/7/6MHz (optional)
DVB-T Guard	1/32, 1/16, 1/8
DVB-T FEC	2/3, 5/6
DVB-T Modulation	QPSK, 16QAM, 64QAM
Sensitivity	-95dB Plus
SOLO Bandwidth	2.5/1.25MHz (optional)
SOLO Guard	1/16, 1/8
SOLO FEC	1/3, 2/3
SOLO Modulation	QPSK 16QAM
Sensitivity	-95 to -104dB

Video	
Line Standard	PAL/NTSC
Resolution	704, 528, 480, 352
Coding Mode	MPEG2 or MPEG4 (optional)
Delay	43ms to 1sec depending on mode
Frame Rate	Full/Half/Quarter/Eighth (optional)

Audio	
Output	Line Level
Sample Rate	32KHz, 16KHz, 8KHz or MPEG L2 48KHz
Bits per Sample	12 or 8 bit

Encryption	
Format	AES128/256 (optional)

Control	
Local Control	By touch screen control interface
Local Control	Via RS232 Control Port
Remote Control Over Ethernet	Via RJ45 Ethernet Port
On Screen Display	Spectrum, RX SNR, RX Power

Physical	
Dimension	L 540mm, W 420mm, H 220mm
Weight	Less than 12kg

Power	
AC Input	110/240V
Power Consumption	Approx 120W

Environment	
Temperature Range	-10 to +50 deg C

Accessories Supplied
1 x Null Cable
2 x Down-converter RX TNC Cable 10m
1 x CRX Data Breakout Cable
Audio and Video Cables available on request.

Commander option:

Addition of joystick and telemetry transmitter

Telemetry	
RF Frequency Band	868-870MHz 457-459MHz 903MHz
1 x PRS Antenna	
Power Output	100mW
Joystick	Triple Axis Joystick: left, right, up, down, twist to zoom

Product Code:

SOL4MUV-034047	Commander
SOL4MUV-058067	SOL4MUVC-125045
SOL4MUV-100150	SOL4MUVC-225045
SOL4MUV-200250	SOL4MUVC-225086
SOL4MUV-450500	SOL4MUVC-225090
SOL4MUV-550600	

SOL04 – NanoVue Receiver

The NanoVue from Cobham is a fully portable digital diversity receiver. It incorporates a high resolution, daylight viewable touch screen with receiver, antennas and clip–on batteries.

With its robust and compact lightweight housing, NanoVue is ideal for tactical use as a monitoring receiver or for mobile surveillance providing decision makers with real time video feedback.

The optional external rechargeable battery pack enables rapid interchange and provides a minimum of four hours continuous use battery life. Alternatively NanoVue can be run from an external DC supply.

The NanoVue has a comprehensive On Screen Display diagnostic capability to show link quality enabling users to optimise transmission performance. It can be controlled through a touch screen interface display or IP Ethernet browser control interfaces.

The easy to use touch screen allows users to switch channels and perform basic configuration, such as frequency selection, without the need for connection to a PC.

Features:

- Fully featured 8/7/6/2.5/1.25 MHz demodulation
- Maximum ratio combining antenna diversity
- High resolution 4.3" display
- Easy to use touch screen
- Internal recording to SD card (included)
- 4 hours battery life (via external pack)
- Optional removable battery pack with internal charger circuit
- Compact weatherproof housing
- Supplied with antennas (as shown)

NanoVue Receiver with antennas

Specification:

Input	
RF Input from Antenna 1	SMA Female 50 Ohm
RF Input from Antenna 2	SMA Female 50 Ohm
Power	Lemo
Ethernet Control	Lemo

Output	
S-video, RS232 Data	Hirose
Stereo Line Level Audio and Composite Video	Lemo
Headphone Audio Out	3.5mm Headphone Jack

RF	
Frequency Bands	1.0 to 1.5GHz 2.17 to 2.5GHz 4.4 to 5.0GHz
Tuning Step Size	250kHz

Control	
Local	Touch Screen Interface
Remote	Ethernet

Modulation	
DVB-T Bandwidth	8/7/6MHz
DVB-T Guard	1/32, 1/16, 1/8, 1/4
DVB-T FEC	1/2, 2/3, 3/4, 5/6
DVB-T Modulation	QPSK, 16QAM, 64QAM
DVB-T Sensitivity	-95dBm
Narrow Band Bandwidth	2.5/1.25MHz
Narrow Band Guard	1/8, 1/16
Narrow Band FEC	1/3, 2/3
Narrow Band Modulation	QPSK, 16QAM
Narrow Band Sensitivity	-95 to -104dBm

Antennas
2dBi Slim Flexible Dipole

Video	
Line Standard	PAL/NTSC
Resolution	704, 528, 480, 352
Coding Mode	MPEG2, MPEG4
Delay	80ms
Screen	480 x 272 pixels

Physical	
Dimension Base Unit	L 130mm, W 30mm, H 80mm
Down-converter	493g

Power	
DC Input	6 to 16V
Power Consumption	9W

Environment	
Temperature Range	-10 to +45 deg C

Product Code:

SOL4NNV-034047	NanoVue 340 to 470MHz
SOL4NNV-100150	NanoVue 1.00 to 1.50GHz
SOL4NNV-217250	NanoVue 2.17 to 2.50GHz
SOL4NNV-440500	NanoVue 4.40 to 5.00GHz

SOLO Central Receiver

SOLO Central Receiver front

SOLO Central Receiver rear

SOLO Central Receiver

The Cobham SOLO Central Receiver system is a highly flexible solution for use in permanent or temporary installed central receive applications.

The Central Receiver system has Cobham technology as its core and is supplied with the following flexibility:

- Four built in receivers
- Four way diversity
- Built in rebroadcast transmitter for down link (option)
- Built in ethernet for network connection (option)
- Rack mount or outdoor box for installation.

To enable law enforcement organisations and emergency services to improve efficiency and safety in overt and covert surveillance operations, the Cobham video microwave radio system is specifically designed for the development of urban infrastructures. Its central receivers allow 24x7 unattended operation and are supplied in enclosures for ease of integration with other communication peripherals.

The central receiver receives and decodes the transmissions from up to four transmitters simultaneously. The transmissions are received through one of four antennae typically mounted on the four corners of the building for 360 degree omni-coverage.

Thanks to Cobham microwave down-converters, the receive antennae can be remotely located in optimal locations up to 50 metres away from the Central Receiver base unit. Meanwhile, the base unit is typically installed at a permanent elevated receive point, either enclosed in an appropriate enclosure for exterior use or a rack mounted system.

Onward distribution of up to four feeds from each remote site is possible. Multiple video and audio outputs are typically viewed locally or down-linked using the built-in rebroadcast transmitter to the Down Link Receiver or through NETCRXIPUP modular options designed for contended public or private networks.

The Cobham narrow bandwidth modulation offers unprecedented spectrum efficiency, while also increasing the system sensitivity and, therefore, range.

The Central Receiver and Down Link Receiver have comprehensive On Screen Display diagnostic capability to show link quality and spectrum and are equipped with video, two voice and data channels. Security of transmission is ensured by the use of optional AES128/256 bit encryption algorithms.

Benefits:

- Continuous video coverage in a defined area
- Negates need for deployed surveillance vehicles and personnel
- Efficient use of manpower and improved safety of operatives
- Potential roaming coverage from vehicles or body worn systems
- Multiple receivers enabling city wide coverage with onward distribution to command and control
- Rapid deployment PTZ camera 'drop and go'
- Remote control of PTZ wireless street camera from HQ
- Most economical architecture to deliver capability, with maximum re-use of existing digital video equipment
- Initial investment offset by long term savings
- Maximum operational flexibility in deploying transmitters
- Ease of configuration, use and troubleshooting
- Near term future proofing for added features
- Security of video assets from source to viewer (end-to-end encryption)
- Seamless interoperability and interfacing with Network Provider existing infrastructure
- Ability to extend range at edges with higher power.

Features:

- Four simultaneous video reception and viewing
- Comprehensive demodulation 8/7/6/2.5 and 1.25MHz (optional)
- Up to four way maximum ratio combining antenna diversity for fade and multipath elimination
- Built-in options for rebroadcast or IP network distribution (optional)
- Remote control via IP interfaces
- Rack mount hardware solutions. Weatherproof outdoor solutions available on request
- Comprehensive On Screen Display (OSD) diagnostics for link analysis, including spectrum analyser
- Internal AES128/256 (optional)
- Monitor video output, selectable between any of the four channels and a quad split mode.

Applications:

- Police metropolitan and urban observation
- Key building surveillance
- Military command control posts
- Airport, ports and terminal security
- Border control
- Major incident support.

Users:

- Police technical support units
- Policy silver and gold command
- Special Forces
- Customs and Excise
- Security Services
- Local/municipal government.

SOLO Central Receiver

Specification:

Inputs	
Antenna Inputs	TNC
RS232 Control	9 way D-sub
Ethernet	RJ45
AC Supply	IEC

Output	
Four Composite Video	BNC
Four S-Video	4 pin MiniDIN
Four Audio Pairs	5 pin Lemo
Monitor Composite	BNC
Video	4 pin MiniDIN
Monitor S-Video	15 way D-sub
Four Way-side Data Outputs	

Receive Bands	
Frequency Bands	2000 to 2500MHz, 1100 to 1400MHz, 70 to 850MHz (set by choice of down-converter)
Tuning Steps	250KHz

Re-broadcast Bands	
Frequency Bands	2000 to 2500MHz, 1150 to 1400MHz (optional)
Tuning Steps	250KHz

Modulation	
DVB-T Bandwidth	8/7/6MHz (optional)
DVB-T Guard	1/32, 1/16, 1/8
DVB-T FEC	2/3, 5/6
DVB-T Modulation	QPSK, 16QAM and 64QAM
Sensitivity	-95dB Plus
SOLO Bandwidth	2.5/1.25MHz (optional)
SOLO Guard	1/16, 1/8
SOLO FEC	1/3, 2/3
SOLO Modulation	QPSK, 16QAM
Sensitivity	-95 to -105dB

Video	
Line Standard	PAL/NTSC
Resolution	704, 528, 480, 352
Coding Mode	MPEG2 or MPEG4
Delay	43ms to 1sec depending on mode
Frame Rate	Full/Half/Quarter/Eighth (selectable in MPEG4)

Audio	
Output	Line Level
Sample Rate	32KHz, 16KHz, 8KHz
Bits per Sample	12 or 8 bit

Encryption	
Format	AES128/256 (optional)

Control	
Local Control	Via RS232 Control Port
Remote Control Over Ethernet	Via RJ45 Ethernet Port
On Screen Display	Spectrum, RX SNR, RX Power

Physical	
Dimension	L 378mm, W 328mm, H 70mm 19" Rack 2U Mounting Kit Supplied
Weight	Less than 8kg

Power	
AC Input	110/240V Autoswitching
Power Consumption	65W Maximum

Environment	
Temperature Range	-10 to +50 deg C

Accessories Supplied
1 x Null Modem Cable
4 x Down-converter RX TNC Cable 10m
1 x CRX Data Breakout Cable
1 x Single Heyway Audio Output Cable

Product Code:

SOLCRX444	BASE MODEL (DOWN-CONVERTERS, RELAY, NETWORK STREAMING AND AES NOT INCLUDED)
SOLCRXT-115140	RELAY OPTION 1.15 TO 1.4GHz
SOLCRXT-168168	RELAY OPTION 1.7 TO 1.9GHz
SOLCRXT-228255	RELAY OPTION 2.28 TO 2.55GHz
NETCRXIPUP	IP STREAMING OPTION

PRORX – Professional Receiver Decoder

PRORX Professional Receiver Decoder front

The PRORX is a feature rich multi-way diversity COFDM receiver, featuring Cobham technology at its core. Supporting interoperation with other manufacturers' DVB-T systems and able to receive the Cobham transmitter family, the PRORX is supplied in a 1/2 19" 2U high rack receiver chassis, where two units can be mounted together to occupy a 19" slot.

It is available with 2-way, 4-way, 6-way and 8-way maximum ratio combining RF inputs, ensuring video is recovered free from the distortions typically associated with fading and multipath. Designed to work with external Cobham down-converters, the receiver will provide phantom power on its inputs for this purpose.

The PRORX incorporates a fully featured SD MPEG2 decoder, with composite and SDI video outputs as well as a Genlock video input. As a future upgrade, it will have an option for an internal HD decoder, but in the interim can be complemented with an external HD decoder for high quality applications.

The PRORX can be controlled through its OLED front panel display, as well as on its RS232 or IP Ethernet browser control interfaces.

For customers wanting to distribute received video to remote locations, the PRORX is supplied with ASI and IP streaming outputs.

A comprehensive On Screen Graphical display is available for monitoring and diagnostics, which can be enabled or disabled separately on the composite and SDI outputs.

The PRORX can be upgraded with a second video decoder output (PRORX-DEC2). The advantages and limitations of this are described in a separate datasheet.

Features:

- 2, 4, 6 or 8 way COFDM diversity
- Fully MPEG2 compliant including 4:2:2
- DVB-T compliant 8/7/6MHz
- Maximum ratio combining antenna diversity for fade and multipath elimination
- Narrowband 2.5 and 1.25MHz compliant
- SDI with embedded audio out
- ASI input and output
- IP control and streaming video
- Genlock input
- Comprehensive on-screen display (OSD) diagnostics for link analysis, including spectrum analyser
- External down-converters for convenient antenna placement
- Internal AES128/256 bit encryption (option)
- Very low delay video operation for real time applications.

Specification:

Down-converters	
RF In	TNC
UHF Out	TNC
Input	
UHF Input 1 to 8	TNC
Power	4 pin 1B Lemo
ASI In	BNC
Genlock	BNC
RS232 Control	9-pin D-type
Output	
2 * SDI Video	BNC
2 * Composite Video	BNC
ASI Out	BNC
2 * Stereo Line Level Audio	5-pin 0B Lemo
2 * RS232 Data	9-pin D-type
RF	
Frequency Bands	70 to 850MHz
With additional Down-Converter	5.62 to 5.9GHz, 4.5 to 5GHz with DCB 450500, 2.20 to 2.55GHz, 2 to 2.5GHz with DCB 200250
Tuning Steps	250KHz
Modulation	
DVB-T Bandwidth	8/7/6MHz
DVB-T Guard	1/32, 1/16, 1/8, 1/4
DVB-T FEC	1/2, 2/3, 3/4, 5/6
DVB-T Modulation	QPSK, 16QAM, 64QAM
Sensitivity	-95dB plus
Video	
Line Standard	PAL/NTSC
Outputs	SDI (2) and Composite (2)
Resolution	704, 528, 480, 352
Coding Mode	MPEG 4:2:2 or 4:2:0
Delay	Approx 80-120ms (mode dependant)
Audio	
Analogue Output	2 Stereo Pairs +18dBm (on 600 ohm)
AES/EBU	2 Stereo Balanced Pairs (110 ohm)
Sample Rate	48KHz
Format	MPEG Audio 384Kb/s to 64Kb/s Mono or Stereo
ASI	
Mode	Byte mode
Data Interface	
RS232 Data Output 1K2 to 115K2 baud switchable	

Control	
Remote Control	Network Web Browser control interface RS232 Control from PC GUI Application
Local Control	Front Panel OLED display with navigation keys
On Screen Display	Spectrum, RX SNR, RX Power
Ethernet	
Mode	10/100/1G Ethernet Port
Function	Remote Control, MPEG-2 UDP Multicast
Physical	
Dimension Base Unit	W 220mm, D 358mm, H 87.5mm
Down-converter	L 102mm, W 100mm, H 35mm
Weight Base Unit	2.8kg
Down-converter	300g
Power	
DC Input	9 to 16V Reverse Polarity Protected
Power Consumption	20W (Two Way Diversity Inc. D/C) 28W (Four Way Diversity Inc. D/C) 36W (Six Way Diversity Inc. D/C) 44W (Eight Way Diversity Inc. D/C)
Environment	
Temperature Range	-20 to +60 deg C
Accessories Supplied	
1 x BNC Video Lead 3m, 1 x PSU12 Power Supply	
1 x Audio Out Cable Lemo-Phono. 1 x Data/Control Cable	

Product Code:

PRORX-2	2 way diversity, IP streaming, SDI, Genlock
PRORX-4	4 way diversity, IP streaming, SDI, Genlock
PRORX-6	6 way diversity, IP streaming, SDI, Genlock
PRORX-8	8 way diversity, IP streaming, SDI, Genlock
PRORXUP	Upgrade with extra 2 way diversity (factory)
PRORXCPLKT	Coupler kit
PRORXSRFP	Single rack front panel
Options	
PRORX-DEC2	Upgrade with 2nd Decoder output
RX-N	Narrowband 2.5MHz
RX-UN	Upgrade to Ultra-Narrowband 1.25Mhz
NETSTREAM1	IP Streaming
AES128RX	Receiver Decryption
AES256RX	Receiver Decryption
HD Options	
PRORX-HDDSDEC	Upgrade with external 1U Dual Decoder with Genlock (130-160ms Latency)
PRORX-HDSDEC	Upgrade with external 1U HD Decoder with Genlock (130-160ms Latency)
PRORX-HDIDEC	Upgrade with external 1U HD Decoder

SOLO4 – Micro Transmitter

The SOLO4 Micro Transmitter is a COFDM digital video transmitter from Cobham, designed specifically for covert video installations and body–worn applications.

With Cobham technology at its core, the small size and low power consumption (typically 4W or less) of the SOLO4 Micro Transmitter make it the product of choice for covert video hides, or applications requiring long term battery power deployments, small unmanned aerial vehicles, and body–worn or bodywire use.

The SOLO4 Micro Transmitter employs MPEG2 encoding (MPEG4 is also available) for excellent image quality retention. Equipped with integral COFDM modulation, the SOLO4 transmitter is ideal for establishing rugged wireless video links in all environments, including mobile and urban environments. Offering several user–selectable modes that trade off image quality against range, the SOLO4 transmitter is ideal for all mission types. The SOLO4 Micro Transmitter includes RF up–conversion and PA circuitry to make a complete single board transmitter. It is supplied in a simple lightweight case with attached Lemo cable connectors.

Security is ensured with optional AES128/256 Encryption.

The SOLO4 Micro Transmitter will transmit images in a non–line of sight environment up to 750m, depending on mode and frequency; further range can be achieved with the booster PA.

Specification:

Inputs	
Composite Video	BNC (break out cable)
SDI (optional)	BNC (break out cable)
Audio 1	Phono (break out cable)
Audio 2	Phono (break out cable)
RS232 Control	Dtype (break out cable)
RS232 Data	Dtype (break out cable)
Power	Lemo 4 pin (break out cable)

Output	
RF Out	SMA

RF	
Power	100mW (14dBm low power mode)
Tuning Range	5.5 to 6GHz 4.5 to 5GHz 2.0 to 2.5GHz 1.0 to 1.5GHz 300 to 450MHz
Tuning Steps	250KHz

Modulation	
Transmit Modes Narrowband:	
Bandwidth	2.5MHz
FEC	2/3, 1/3
Modulation	QPSK or 16QAM
Upgradable to	1.25MHz narrow bandwidth
Transmit Modes Wideband:	
DVB-T Bandwidth	8/7/6MHz
FEC	1/2, 2/3, 3/4 , 5/6, 7/8
Modulation	QPSK, 16QAM and 64QAM

Video	
Input Format	PAL, NTSC (with or without pedestal) RS170 and SDI (optional)
Encoding Narrowband	MPEG2 (or MPEG4 option)
Encoding Wideband	MPEG2 Only
MPEG2 Frame Rate	Full Frame Rate
MPEG4 Frame Rate	Full or 1/2, 1/4, 1/8, 1/24
Delay	500ms to 43ms (mode dependant)

Audio	
Input	Line Level or Microphone switchable -2dBu Max input level
Audio Encoding MPEG Layer 1: Sample Rate	32KHz 384Kb/s to 64kb/s
Audio Encoding NICAM Style: Sample Rate	32KHz, 16KHz, 8KHz switchable
Bits per sample	12 or 8 bit switchable

Data Interface	
RS232 Data Input	1k2 to 115K2 baud switchable

Encryption	
Format	ABS Encryption 32 bit AES128/256 (optional)

Control	
Control Interface	RS232 Control from PC GUI Application
Front Panel	None supplied, future external plug in RS232 controller (field gun)

Physical	
Dimension	L 86mm, W 49mm, H 11mm (main chassis)
Weight	70g

Power	
DC Input	5.9V to 16V Reverse Polarity Protected
Power Consumption	Normal consumption 4.1W for 100mW out Low power mode 3.7W for 25mW out

Environment	
Temperature Range	-15 to +60 ˚C
Vibration	Tested with 15g shock and Random with sine vibration 3g Results will depend on chassis installation

Product Code:

SOL4MTX-030045
SOL4MTX-045068
SOL4MTX-100150
SOL4MTX-165250
SOL4MTX-300370
SOL4MTX-450500

SOLO4 – Transmitter

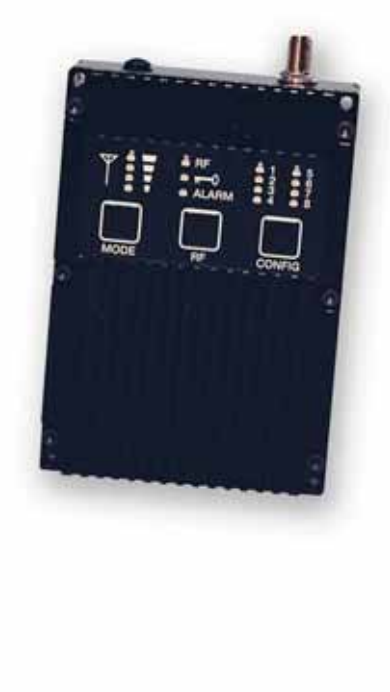
The SOLO4 Transmitter from Cobham is a feature–rich COFDM digital video transmitter. The SOLO4 Transmitter can operate in a variety of transmission bandwidths allowing the user to trade off image quality against range to suite all types of missions. Excellent range, performance and spectral efficiency are offered when operating in the unique 2.5MHz and 1.25MHz narrow bandwidth modes. For excellent image quality at shorter ranges the 8MHz DVB–T modulation can be employed. The SOLO4 Transmitter is the first to offer this choice in one product. MPEG2 and MPEG4 image compression is also a user selectable feature.

The SOLO4 Transmitter has Cobham technology at its core and is ideal for establishing rugged wireless video links in all environments including mobile and urban environments. Security is ensured with built–in 32 bit ABS encryption or, for greater security, AES128/256 bit encryption is also available, subject to export controls. The SOLO4 Transmitter is available in a variety of frequency bands from 300MHz to 5.9GHz.

Able to transmit images in a non–line of sight environment up to 1km depending on mode and frequency, the SOLO4 Transmitter can achieve further range with the clip–on booster PA.

The SOLO4 Transmitter is typically used as a stand–alone uni–directional video link, however if a bi–directional system is required, it can be deployed in conjunction with the SOLO Telemetry system.

Supplied in a rugged, lightweight weather proof aluminium chassis, the SOLO4 Transmitter can be used in body–worn applications, or prolonged outdoor deployments.



Specification:

Input	
Composite Video	5 pin OB Lemo
Audio 1	5 pin OB Lemo
Audio 2	5 pin OB Lemo
SVideo	Hirose 16 pin 3500 series
RS232 Data	Hirose 16 pin 3500 series
RS232 Control	Hirose 16 pin 3500 series
Chaining I/O	Hirose 16 pin 3500 series
General Purpose I/O	Hirose 16 pin 3500 series
Power	4 pin OB Lemo

Output	
RF Output	SMA

RF	
Frequency Bands	5.62 to 5.9GHz, 4.5 to 5GHz, 3.1 to 3.4GHz, 2.28 to 2.55GHz, 1.5 to 2GHz, 1.15 to 1.4GHz, 575 to 675MHz, 470 to 520MHz, 340 to 470MHz
Power	100mW
Power Control	30dB in 1dB steps
Tuning Steps	250KHz

Modulation	
Bandwidths (DVB-T or SOLO)	8/7/6/2.5MHz (1.25MHz optional)
Default Modes: Mode 1 - Short Range Mode 2 - Normal Range Mode 3 - Long Range Mode 4 - Ultra Long Range	 2.5MHz, 16QAM, FEC2/3, 4.8Mb/s 2.5MHz, QPSK, FEC2/3, 2.4Mb/s 2.5MHz, QPSK, FEC1/3, 1.2Mb/s (1.25MHz, QPSK, FEC1/3, 600kb/s optional)

Video	
Line Standard	PAL/NTSC
Resolution	704, 528, 480, 352
Coding Mode	MPEG2 (MPEG4 optional)
Delay	43ms to 120ms depending on mode
Frame Rate	Full/Half/Quarter/Eighth (selectable)

Audio	
Input	Line Level or Microphone
Sample Rate NICAM	32KHz, 16KHz, 8KHz switchable
Bits per Sample NICAM	12 or 8 bit switchable
MPEG L1 or L2	64kbits - 384kbps 48KHz sampling

Data Interface	
RS232 Data Input	1K2 to 115K2 baud switchable

Encryption	
Format	ABS 32 bit as standard AES128/256 (optional)

Control	
Remote Control	RS232 Control from PC GUI Application
Local Control	Front Panel 8 channel select, RF on/off, Range mode, Lock, Alarm

Physical	
Dimension	L 102mm, W 71mm, H 22mm
Weight	350g

Power	
DC Input	5.9 to 16V Reverse Polarity Protected
Power Consumption	4.8 to 6W depending on mode

Environment	
Temperature Range	-20 to +70 deg C

Accessories Supplied
1 x SOLO 12V DC Power Lead Lemo-wire 2m
1 x 3rd Generation Man-worn Control Cable
1 x 3rd Generation Bodycam AV Cable Lemo-BNC/Phono 2m
1 x Data Cable (optional)

Product Code:

SOL4TX-034047
SOL4TX-100150
SOL4TX-150200
SOL4TX-200250
SOL4TX-250300
SOL4TX-300350
SOL4TX-450500
SOL4TX-550600

SOLO6 – Dual Transmitter

The SOLO6 Transmitter from Cobham is a feature–rich COFDM digital video transmitter. The SOLO6 Transmitter can operate in a variety of transmission bandwidths allowing the user to trade off image quality against range to suite all types of missions. Excellent range, performance and spectral efficiency are offered when operating in the unique 2.5MHz/1.25MHz and unique 625kHz narrow bandwidth modes. For excellent image quality at shorter ranges the 8MHz DVB–T modulation can be employed.

The SOLO6 offers the capability to stream two video in several ways. Two video feeds can be streamed via Cobham's chaining interface over a single COFDM Transmitter, or there is the ability to switch allowing the best use of spectrum available for a particular operation. Two feeds can also be transmitted over two different frequency channels if required.SOLO6 supports MPEG2 and MPEG4 image compression which are user selectable feature.

The SOLO6 Transmitter has Cobham technology at its core and is ideal for establishing rugged wireless video links in all environments including mobile, rural and urban. Security is ensured with built–in 32 bit ABS encryption or, for greater security, AES128/256 bit encryption is also available, subject to export controls. The SOLO6 Transmitter is available in a variety of frequency bands from 300MHz to 5.0GHz.

Able to transmit images in a non–line of sight environment up to 1km depending on mode and frequency, the SOLO6 Transmitter can achieve further range with the 1W clip–on booster PA.

The SOLO6 Transmitter is typically used as a stand–alone uni–directional video link, however if a bi–directional system is required, it can be deployed in conjunction with the SOLO Telemetry system.

The SOLO6 transmitter is small, lightweight and weather proof. It is highly power efficient drawing only 4.3W at 12V and can run from batteries or mains using anywhere between 6–16V. This makes it ideal for indoor or outdoor deployments, used as a body worn application or mounted on any kind of vehicle, manned or unmanned, in any overt or covert applications.

Specification:

Input

Composite Video 1	5 pin OB Lemo 1
Audio 1.1	5 pin OB Lemo 1
Audio 2.1	5 pin OB Lemo 1
Composite Video 2	5 pin OB Lemo 2
Audio 1.2	5 pin OB Lemo 2
Audio 2.2	5 pin OB Lemo 2
SVideo	Hirose 16 pin 3500 series
RS232 Data	Hirose 16 pin 3500 series
RS232 Control	Hirose 16 pin 3500 series
General Purpose I/O	Hirose 16 pin 3500 series
Power	4 pin OB Lemo

Output

RF Output	SMA x 2

RF

Frequency Bands	4.5 to 5GHz, (475) 1.6GHz to 2.5GHz (205) 1.0 to 1.5GHz, (125) 340 to 470MHz (038)
Power	100mW
Power Control	30dB in 1dB steps
Tuning Steps	250kHz

Modulation

Bandwidths (DVB-T or SOLO)	8/7/6/2.5MHz (1.25MHz optional)
Default Modes:	
Mode 1 - Short Range	2.5MHz, 16QAM, FEC2/3, 4.8Mb/s
Mode 2 - Normal Range	2.5MHz, QPSK, FEC2/3, 2.4Mb/s
Mode 3 - Long Range	2.5MHz, QPSK, FEC1/3, 1.2Mb/s
Mode 4 - Ultra Long Range	1.25MHz, QPSK, FEC1/3,600kb/s
Mode 5 – Ultra X	625kHz, QPSK, FEC1/3,300kb/s

Video

Line Standard	PAL/NTSC
Resolution	704, 528, 480, 352
Coding Mode	MPEG2 (MPEG4 optional)
Delay	43ms to 120ms depending on mode
Frame Rate	Full/Half/Quarter/Eighth (selectable)

Audio

Input	Line Level or Microphone
Sample Rate NICAM	32kHz, 16kHz, 8kHz switchable
Bits per Sample NICAM	12 or 8 bit switchable
MPEG L2 or L2	64kbits – 384kbps 48kHz sampling

Data Interface

RS232 Data Input	1K2 to 115K2 baud switchable

Encryption

Format	ABS 32 bit as standard AES128/256 (optional)

Control

Remote Control	RS232 Control from PC GUI Application
Local Control	Front Panel 16 channel select, RF on/off, Range mode, Lock, Alarm

Physical

Dimension	L 102mm, W 71mm, H 32mm
Weight	425g

Power

DC Input	5.9 to 16V Reverse Polarity Protected
Power Consumption	3.9 W to 4.3W depending on mode

Environment

Temperature Range	-20 to +70 deg C

Accessories Supplied

1 x SOLO 12V DC Power Lead Lemo-wire 2m
1 x 3rd Generation Man-worn Control Cable
2 x 3rd Generation Bodycam AV Cable Lemo-BNC/Phono 2m
1 x Data Cable (optional)

Product Code:

SOL6TX-038125	SOLO6 Tx 300 to 450MHz and 1.00 to 1.50GHz
SOL6TX-038208	SOLO6 Tx 300 to 450MHz and 1.65 to 2.50GHz
SOL6TX-056125	SOLO6 Tx 450 to 675MHz and 1.00 to 1.50GHz
SOL6TX-056208	SOLO6 Tx 450 to 675MHz and 1.65 to 2.50GHz
SOL6TX-125208	SOLO6 Tx 1.00 to 1.50GHz and 1.65 to 2.5GHz
SOL6TX-208208	SOLO6 Tx 1.65 to 2.50GHz and 1.65 to 2.50GHz
SOL6TX-208475	SOLO6 Tx 1.65 to 2.50GHz and 4.50 to 5.00GHz

Options

TXUP	Upgrade from 2.5MHz to 1.25MHz
TXUPX	Upgrade from 1.25MHz to 625KHz

SOLO – Options

SOLO - Booster 1 Watt Amp

Compatible with SOLO video transmitters.

Specification:

Input	
RF In	SMA
RF Enable	Hirose
Power	3 pin OB Lemo

Output	
RF Out	TNC

RF	
Frequency Bands	1.25 to 2.5GHz
Power In	100mW
Power Out	1W
Gain	10dB
Power Ripple	+/- 1dB across band
Output Matching	Matching Circuit immune to open or short

Physical	
Dimension	L 95mm, W 70mm, H 32mm
Weight	350g

Power	
DC Input	9 to 16V Reverse Polarity Protected
Power Consumption	10W typical

Environment	
Temperature Range	-20 to +70 deg C

Accessories Supplied
1 x RS232 Cable Lemo-DSUB9 3m
1 x Bodyworn 1W Amp Power/Control Cable
1 x Bodyworn 1W Amp RF Link Cable

Note: In normal operation RS232 data input is not available.
If RS232 data input is required contact Cobham for a special cable.

Product Code:

SOLAMP1W

SOLO4 – Robust Transmitter

The Robust SOLO4 Transmitter unit from Cobham is a feature–rich COFDM digital video transmitter, which can operate in a variety of transmission bandwidths allowing the user to trade off image quality against range, to suit all types of missions. Excellent range, performance and spectral efficiency are offered when operating in the unique 2.5MHz and 1.25MHz narrow bandwidth modes.

The Robust SOLO4 Transmitter has Cobham technology at its core and is ideal for establishing prolonged rugged wireless video links, in harsh external environments. Security is ensured with our built–in 32 bit ABS encryption or, for greater security, AES128/256 bit encryption is also available, subject to export controls. The Robust SOLO4 Transmitter is available in a variety of frequency bands from 340MHz to 3.4GHz.

SOLO4 Robust Transmitter

Able to transmit images in a Non–Line of Sight (NLOS) environment up to 500m depending on mode and frequency, the Robust SOLO4 Transmitter can achieve even further range with the bolt–on booster PA.

Supplied in a sealed IP 67 rated aluminium enclosure, the Robust SOLO4 Transmitter can be used in a variety of applications and is available in microwave and UHF frequencies.

Specification:

Input	
Composite Video	4 pin amphenol
Audio	3 pin amphenol
RS-232 Control and Data	7 pin amphenol
12V DC In	3 pin amphenol

Output	
RF Out	TNC

RF	
Frequency Bands	340 to 470 MHz 470 to 520 MHz 570 to 670 MHz 1.15 to 1.40 GHz 2.28 to 2.55 GHz 2.70 to 2.90 GHz 3.10 to 3.40 GHz
Power	100mW
Power Control	20dB in 1dB steps
Tuning Steps	250 KHz

Modulation	
Bandwidths (DVB-T or SOLO)	8/7/6/2.5MHz (1.25MHz optional)
Default Modes: Mode 1 - Short Range Mode 2 - Normal Range Mode 3 - Long Range Mode 4 - Ultra Long Range	 2.5MHz, 16QAM, FEC2/3, 4.8Mb/s 2.5MHz, QPSK, FEC2/3, 2.4Mb/s 2.5MHz, QPSK, FEC1/3, 1.2Mb/s (1.25MHz, QPSK, FEC1/3, 600kb/s optional)

Video	
Line Standard	PAL/NTSC
Resolution	704, 528, 480, 352
Coding Mode	MPEG2 (MPEG4 optional)
Delay	43ms to 120ms depending on mode
Frame Rate	Full/Half/Quarter/Eighth (selectable)

Audio	
Input	Line Level or Microphone
Sample Rate	32KHz, 16KHz, 8KHz switchable
Bits per Sample	12 or 8 bit switchable

Data Interface	
RS232 Data Input	1K2 to 115K2 baud switchable

Encryption	
Format	ABS 32 bit as standard AES128/256 (optional)

Control	
Remote Control	RS232 Control from PC GUI Application
Local Control	Front Panel 8 channel select, RF on/off, Range mode, Lock, Alarm

Physical	
Dimension	L 150mm, W 120mm, H 35mm

Power	
DC Input	10 to 16V
Power Consumption	4.8 to 6W depending on mode

Environment	
Temperature Range	-20 to +50 deg C
Sealing	IP67

Associated Equipment:

The following devices are also part of the system	
SOL4RXR	Robust SOLO4 Receiver 1 video, 2-way diversity with integral down converters
SOLAMPR1W	Robust Clip-on 1W amplifier

Product Code:

SOL4TXR-034047
SOL4TXR-100150
SOL4TXR-200250
SOL4TXR-300350
SOL4TXRXUP UPGRADE ADDS 1.25MHz UNB AND MPEG4

SOLO4 – Robust Clip-on 1W Amplifier

The Robust SOLO4 Bolt–on 1W Amplifier from Cobham provides increased range for our robust range of digital video transmitters.

The narrow bandwidth associated with COFDM means that this unit provides exceptional spectral efficiency allowing multiple high quality video links to operate within the same bandwidth traditionally held by a single analogue video signal. The multicarrier modulation scheme has the ability to cope with severe channel interference such as fading and multi–path, making it ideal for surveillance operations.

The Robust 1W Amplifier combined with the Robust SOLO4 Transmitter provides a rugged non line–of–sight (NLOS) link over a range of around 1km with non–directional antennae, and gives line–of–sight (LOS) operation to several kilometres, whilst the sealed IP 67 rated aluminium enclosure allows the unit to be deployed in external environments for prolonged periods of time.

SOLO4 Robust Clip-on 1W Amplifier (L & S-Band)

Specification:

Input	
RF In	TNC
12V DC In	3 pin amphenol
Output	
RF Output	TNC
RF	
Frequency Bands	1.25 to 2.50 GHz 3.10 to 3.40 GHz
Power In	100mW
Power Out	1W
Physical	
Dimensions L & S-Band C-Band	 L 150mm, W 116mm, H 43mm L 199mm, W 116mm, H 43mm
Power	
DC input	10 to 16V
Power Consumption	10W typical
Environment	
Temperature Range	-20 to +50 deg C
Sealing	IP67

Associated Equipment:

The following devices are also part of the system

SOL4TXR	Robust SOLO4 Transmitter
SOL4RXR	Robust SOLO4 Receiver

Product Code:

SOLAMPR1W-100150
SOLAMPR1W-200250
SOLAMPR1W-310340

SOLO HD Transmitter

The SOLO HD Transmitter from Cobham is a rugged, High Definition digital video transmitter, ideal for law enforcement surveillance or sports and news links applications. The HD Transmitter can operate in a variety of transmission bandwidths allowing the user to trade off image quality against range to suite all types of applications. Excellent range, performance and spectral efficiency are offered when operating in the unique 2.5MHz narrow bandwidth mode. For excellent image quality at shorter ranges the 8MHz DVB–T modulation can be employed.

The increased compression and efficiency of the MPEG4 H264 encoder in Cobham's HD solution offers users additional range with the added benefit of small size, low latency and low power consumption. Able to transmit images in a non–line of sight environment up to 1km depending on mode and frequency, the SOLO4 Transmitter can achieve even further range with the clip–on booster PA. Greater security of the transmission can be ensured using the optional internal AES128/256.

The SOLO HD transmitter can be easily connected to any camera type. A range of camera brackets are available to facilitate easy mounting of the SOLO HD transmitter to satisfy many different camera styles.

For excellent range and coverage, the SOLO HD transmitter can be operated with the Cobham Pro–RX receiver with optional HD decoder. The Pro–RX receiver is available with 2 way, 4 way, 6 way and 8 way diversity.

Specification:

Input	
SD Composite Video	BNC
SD/HD-SDI	BNC
HDMI	HDMI Type A
ASI In	SMB
Balanced Stereo Audio	5 way OB Lemo
USB Control	6 way OB Lemo
Power	4 way OB Lemo
Data channel	4-way OB Lemo

Output	
RF	SMA
ASI Out	SMB

RF	
Frequency Bands	2.0 to 2.5GHz or 3.0 to 3.5GHz Other Frequencies available on request
Tuning Step Size	250kHz
O/P Power	100mW (500mW with external amplifier)

Modulation	
DVB-T Bandwidth	8, 7 and 6MHz modes
DVB-T Guard	1/32, 1/16, 1/8, 1/4
DVB-T FEC	1/2, 2/3, 3/4, 5/6, 7/8
DVB-T Modulation	QPSK, 16QAM, 64QAM
DVB-T Bit-rates	5Mbps to 27Mbps
DVB-T Sensitivity	-95dBm best case mode
Cobham Narrow-Band	2.5,3 and 3.5MHz modes
Bit-rates	600kbps to 6.7Mbps
Sensitivity	-102dBm best case mode

Video	
Video Input	SD/HD-SDI, HDMI, Composite
Compression Type	AVC/H.264/MPEG-4 Part 10
HD Resolution modes	1920*1080i @30/29.97/25 1920*1080p @30/29.97/25/24/23.97 1920*1080psf @30/29.97/25/24/23.97 1280*720p @60/59.94/50
SD Resolution modes	720*480i @29.97 720*576i @25
Other modes	Horizontal downsampling of 3/4, 2/3, 1/2 Vertical downsampling of 1/2 Sub-frame rate of 1/2, 1/4, 1/8, 1/24
Coding Mode	High profile level 4.1, I/IP 4:2:0 Progressive or Interlaced (MBAFF)
End to End Delay	<300ms in standard delay mode)
Encoder Bitrates	0.25 to 30Mb/s

Audio	
Audio Input	SD/HD-SDI, HDMI 2 digital stereo pairs 1 Analogue stereo pair Mic/Aux level
Sample Rate	48 kHz
Coding Modes	2 channels stereo or mono MPEG Audio Layer 1 64-448kbps MPEG Audio Layer 2 48-384kbps

Data Interface	
RS232 Data Input	1k2 to 115k2 baud switchable 7/8 bit, none/odd/even parity

ASI	
Mode	Byte Mode

Encryption	
Type	ABS Encryption 32 bit AES128/256 (optional)

Control	
Front Panel	Integrated Field Controller
Remote Control	USB Control from PC GUI Application

Physical	
Dimensions	L 130mm, W 80mm, H 30mm
Weight Base Unit	400g

Power	
DC Input	6 to 16V Reverse Polarity Protected
Power Consumption	10W for 100mW out, 14W for 500mW, with 1080i30 coding

Environment	
Temperature Range	-10 to +50 °C
Sealing	Splash Proof

Product Code:

SOLHDTX-034047	HD-SD Video transmitter – 340-470MHz
SOLHDTX-100150	HD-SD Video transmitter – 1.0-1.5GHz
SOLHDTX-200250	HD-SD Video transmitter – 2.0-2.5GHz

COFDM Drop Camera Transmitter

The SOL4DCAM Mk2 is a the second generation drop camera from Cobham. The SOL4DCAM Mk2 Transmitter incorporates a COFDM digital video transmitter, battery, camera and microphone into a rapid deployment robust chassis. The integral camera can also be abstracted on a cable or used as a generic video input giving the second generation DropCam a high degree of flexibility.

The DropCam is ideal for rapid deployment tactical scenarios where video coverage is required across ranges of typically 300–500m and line of sight is not available.

The DropCam Transmitter is housed in a rugged IP66 housing and is suitable for outdoor deployment. The integral battery pack provides upto 4 hours of power and can be recharged using the DC supply provided.

The DropCam Transmitter is provided with an interface cable that provides a generic input interface for video, two audios and a data channel (can be used for sensor data or GPS typically). The DropCam Transmitter

Drop Camera with
Camera and Microphone removed

is supplied with a high resolution low light camera with interchangeable lenses, which docks directly to the transmitter body, or can be abstracted using a 3m cable.

The DropCam is also compatible with the full range of Cobham cameras, some of which can also dock directly to make a self contained video transmission system for rapid deployment scenarios. Cameras can also be abstracted from the transmitter body, this is sometimes more convenient in hide situations.

Security of the link is ensured through the use of AES128/256 encryption.

The DropCam can be upgraded to a DropCam3G by the addition of an integral 3G modem for long range network monitoring and system control. This upgrade is not a field upgrade but requires the DropCam to be returned to Cobham.

Kit Contents:

Pelicase, lid instructions and CD
Drop Camera Body
Replacement 9 and 16mm Lens
Mounting Camera 3.6mm Lens
Antenna
AC mains adaptor
Control break out cable
Video and audio in cable
3m Camera Interface Cable
Magnetic Bracket
3" Mounting Spike

Specification:

Input	
Video and Audio	Binder Female 99 9136 0012 Video, Audio, camera control, sensor, Camera power
DC In and Control	Unknown Connector

Output	
RF Out	SMA Female

Antennae	
RF Out Antenna	2dBi Omni

RF	
Frequency	Model Dependant. 300 to 450MHz, 1.0 to 1.5Ghz, 2.0 to 2.5GHz
Power	100mW
Tuning Step Size	250kHz

Modulation	
Bandwidth	COFDM 8,7,6MHz DVBT or 2.5Mhz
FEC	Standard DVBT, 2.5MHz = 1/3 or 2/3

Video	
Input	PAL or NTSC
Compression	MPEG2 or MPEG4 (optional)
Resolution	720 to 352 pixel user configurable
Bitrate	4.8Mb/s to 600kb/s (full frame rate)

Audio	
Input	Line Or Microphone Level
Compression	Nicam or MPEG layer 1
Sample Rate	48 or 32kb/s (user selectable)
Bitrate	64 to 728kb/s (user selectable)

Camera	
Sensor	1/4" CMOS Fixed Focal 3.4mm (56deg HFOV) F2
Format	-P = PAL, -N = NTSC
Additional Lenses	9mm and 16mm
Resolution	>460 TVL
Sensitivity	0.05Lux
SNR	>46dB

Microphone	
Type	Omni 50 – 13Khz
Sensitivity	60dB +/-3dB

Encryption	
Type	AES128 or AES256 (optional)

Control	
Remote	RS232 control from PC application
Local	Config switch, ON/OFF

Trigger Input
Close contact input pins for 'wake-up' and 'sleep'

Physical	
Size	L 112mm, W 42mm H 54mm
Weight	500g
Mounting	Magnetic strip, tripod and screw fixing

Power	
Voltage	9-16V
Consumed	6W

Environment	
Temperature	-20 to +60 deg C
Sealing	IP66

Product Code:

SOL4DCAM-N-030045	Drop Camera NTSC 300-450MHz
SOL4DCAM-N-120150	Drop Camera NTSC 1.20-1.50GHz
SOL4DCAM-N-165185	Drop Camera NTSC 1.65-1.85GHz
SOL4DCAM-N-200250	Drop Camera NTSC 2.00-2.50GHz
SOL4DCAM-P-030045	Drop Camera PAL 300-450MHz
SOL4DCAM-P-120150	Drop Camera PAL 1.20-1.50GHz
SOL4DCAM-P-165185	Drop Camera PAL 1.65-1.85GHz
SOL4DCAM-P-200250	Drop Camera PAL 2.00-2.50GHz

Accessories:

SOL4DCAMIR	Infra Red Camera Head Option (5m Illumination at 940nm Infra Red)

SOLO4 – 'DropCam' Accessories

The SOLO4 DropCam is supplied in kit form with the following accessories:

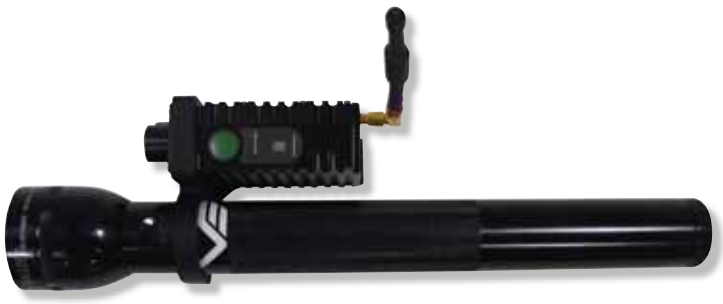
Accessories supplied
1 x rugged carry case with operator instructions
1 x Control and DC cable
1 x AC to DC adaptors
1 x 8mm lens (blue band)
1 x 16mm lens (red band)
1 x right angle magnetic clip
1 x 2dBi Omni antenna
1 x tools for lens replacement

SOLO4 – 'DropCam' Optional Accessories - Torch Clip

The DropCam can be mounted on standard baton style torches such as the Maglite by employing the optional DropCam Torch Clip Mount, creating an ideal solution for first responder and emergency services workers:

Part number
TORCP – Torch Clip bracket for DropCam

Accessories supplied with Torch Clip
1 x Torch Clip
1 x screw for tripod mount
1 x Allen key



SOLO4 – ClearCam Deployable Camera

The Cobham ClearCam system is ideal for surveillance, perimeter security, fire control and CBRN applications. A robust PTZ camera designed specifically for rapid deployment, the on board status display gives at–a–glance link status, confirming that the ClearCam is in range of the receive station.

This tactical system incorporates a periscope PTZ camera, digital video transmitter, telemetry receiver and battery technology into a weatherproof package for long term outdoor deployment. The ClearCam will typically operate at a range of up to 1km.

The robust ClearCam chassis is IP66 rated, and supplied with a variety of mounting options to enable tripod, mast or simple deployment on the base. The integral periscope camera can be detached from the ClearCam base, and is supplied with a 10m umbilical cable for maximum deployment flexibility.

Integral battery life can be extended by the connection of sensors to automatically wake the camera from sleep mode in the event of trigger activity.

The Cobham narrow bandwidth modulation offers unprecedented spectrum efficiency, while increasing the system sensitivity and range. Standard ABS encryption or optional AES128– or 256–bit encryption algorithms ensure transmission security.

Features:

- External DC input for long duration deployments
- External sensor trigger inputs
- 36x Optical zoom, low light colour camera
- 400 degree pan, –20 to +40 degree tilt
- Available in a range of frequencies
- Secure communications
- Long deployment range
- Sophisticated user features to enable rapid deployment.

Specification:

Antennas	
Transmit Antenna	TNC
Receive Antenna	TNC
Input/Output	Amphenol connectors
DC Power	62GB-12E10-02SN
GPIO trigger inputs	62GB-12E12-08SN
RS-232 control	62GB-12E08-03SN
Audio Input and output	62GB-12E10-06SN
Camera 1 connector	62GB-12E12-14SN
Camera 2 connector	62GB-12E12-14SN

Antennas	
Transmit Antenna	4dBi Colinear TNC mount flexible
Receive Antenna	2dBi Coliner BNC mount flexible

RF	
Transmit Frequency Bands	SOL4CLCx-240045 and SOL4CLCx-240086 2.28 to 2.55GHz tuneable SOL4CLCx-120045 1.15 to 1.4GHz tuneable
Transmit Power	30dBm (1W)
Tuning Steps	250kHz
Receive Frequency Bands	SOL4CLCx-240045 and SOL4CLCx-120045 456 to 458MHz tuneable SOL4CLCx-240086 868 to 870MHz tuneable
Receive Sensitivity	-118dBm typical

Modulation	
Transmit modes	
Bandwidth	2.5MHz or 1.25MHz
Modulation	QPSK or 16QAM
FEC	1/3 or 2/3
Bitrate	600kb/s to 4.8Mb/s

PTZ Camera	
Range of PTZ	400 degree pan, -20 to +40 vertical
Zoom	36X Optical and 12X digital
Low Light	Yes
Line standard	P model PAL, N model NTSC

Video Encoding	
Resolution	704, 528, 480, 352
Coding mode	MPEG2 or MPEG4 (optional)
Delay	43ms to 1sec depending on model
Frame rate	Full/Half/Quarter/Eighth (optional)

Audio	
Level	Line Level
Sample rate	32kHz, 16kHz, 8kHz
Bits per sample	12- or 8-bit

Sensors Inputs	
Quantity	2
Format	Closed Contact Detection

Sleep Options	
Modes	Wake on trigger input/Wake on user instruction
Wake Period	User defineable

Encryption	
Format	ABS (standard) AES128 / 256 selectable (optional)

Control	
Remote control	Over air from MicroVue Commander case On/Off switch, transmit switch, channel switch and status switch User status display indicates battery life and link status
PC Control	Using PC RS232 Application

Physical	
Dimension	Base unit - L 280mm, W 245mm, H 90mm Turret and Plinth - H 350mm, 75mm Diameter
Weight	Base unit - 6.4kg Turret unit - 1.5kg

Power	
DC input (8A fused)	11-16V (Reverse Polarity Protected)
Battery backup (internal fuse)	3.5 hours operation in 1W mode (NiMH)

Environment	
Temperature Range	-20 to +50 deg C
Protection	Dry Nitrogen

Product Code:

SOL4CLCN-240090
SOL4CLCN-240086
SOL4CLCN-240045
SOL4CLCN-120045
SOL4CLCP-240086
SOL4CLCP-240045
SOL4CLCP-120045

Digital Microwave C-Band Linear RF Amplifier

The Cobham Digital RF amplifiers bring a new level of performance and reliability to microwave transmission of digitally modulated video. The linear RF power amplifier provides 5 Watts of RF power into any load.

The linear amplifier features Cobham technology at its core and is ideal for digital transmission applications in surveillance, law enforcement, military UAV and UGV, airborne data/telemetry and television broadcasting. It is designed to amplify COFDM digitally modulated signals (QPSK, 16–QAM) and features broadband operation, while requiring a minimum of DC current.

Only minimum heat sinking is required for the high output models in normal operation. Packaged in a rugged aluminium housing, the amplifier construction lends itself to applications where extreme environmental conditions are the norm. Chassis connectors are environmentally protected, making the amplifier ideal for airborne operations where it can be mounted on a helicopter skid.

The integral lineariser minimises distortions typically associated with conventional RF amplification techniques. The amplifier is designed to meet the stringent requirements of the DVB–T spectral mask and may be used for COFDM, QPSK, QAM and CW applications.

Input and output port protection is provided with a VSWR better than 2,0:1 across the frequency band providing excellent matching into filters. Reverse polarity protection and short circuit protection are standard features.

Features:

- Designed for Digital Modulation
  – COFDM, QPSK, BPSK
- Ultra linear
- High efficiency
- Operating gain
  – 5W: 17 dB typical
- RF ports are open and short protected
- Short circuit/over–voltage protection
- Reverse polarity protection
- 11 – 28 Vdc input
- Rugged packaging
- Mute function

Specification:

Electrical

Frequency range	C band: 3.10 to 3.50 GHz
Input/output protection	Open and short circuit
VSWR	≥ -14 dB input and output return loss
Non-harmonic spurious output	> -65 dBc Typ.
Nominal drive	+20 dBm
Overdrive capability	Pin (nom) + 3 dBm (typ.)
Modulation formats	COFDM, QAM, CW
Reverse polarity protection	
Short circuit protection	
Gain flatness	±0.5 dB across operating band
Operating gain	5W: (17 dB typ.)
Output power	+37 dBm
ACPR	-30 dBc (typ.)
OIP3 @ Pop (typ)	5W: 37 dBm
Power added efficiency	15% typical
PA mute on PTO	
Status LED	ON/STBY
Supply voltage	+11 Vdc to +28 Vdc
Supply current	5W output: 3.8 A (typ.) @ 12 Vdc

Environmental

Operating temperature	-15 to +60 °C, Baseplate
Relative humidity	0 to 95%, non-condensing
Environmentally protected	

Mechanical

DC input connector	PTO 4 pin - A Pin - V+ - B Pin - forward power (normal high, goes low if o/p is 6 dB less than 37 dBm) - C Pin - GND - D Pin - Mute - pull low to mute
Housing	Milled aluminium (nickel plated)
Dimensions	H 35.5mm, W 121.5mm, L 169.5mm
Weight	Approx 1.5kg
RF input	SMA female (sealed)
RF output	TNC female (sealed)
User camera type	PAL or NTSC

Product Code:

SOLAMP5W-310350

Digital Microwave L-Band Linear RF Amplifier

The Cobham Digital RF amplifiers bring a new level of performance and reliability to microwave transmission of digitally modulated video. The linear RF power amplifier provides 5 watts of RF power into any load.

The linear amplifier features Cobham technology at its core and is ideal for digital transmission applications in surveillance, law enforcement, military UAV and UGV, airborne data/telemetry and television broadcasting. It is designed to amplify COFDM digitally modulated signals (QPSK, 16–QAM) and features broadband operation, while requiring a minimum of DC current.

Only minimum heat sinking is required for the high output models in normal operation. Packaged in a rugged aluminium housing, the amplifier construction lends itself to applications where extreme environmental conditions are the norm. Chassis connectors are environmentally protected, making the amplifier ideal for airborne operations where it can be mounted on a helicopter skid.

The integral lineariser minimises distortions typically associated with conventional RF amplification techniques. The amplifier is designed to meet the stringent requirements of the DVB–T spectral mask and may be used for COFDM, QPSK, QAM and CW applications.

Input and output port protection is provided with a VSWR better than 2.0:1 across the frequency band providing excellent matching into filters. Reverse polarity protection and short circuit protection are standard features.

Features:

- Designed for Digital Modulation
  – COFDM, QPSK, BPSK
- Ultra linear
- High efficiency
- Operating gain
  – 5W: 17 dB typical
- RF ports are open and short protected
- Short circuit/over–voltage protection
- Reverse polarity protection
- 11 – 28 Vdc input
- Rugged packaging
- Mute function

Specification:

Electrical

Frequency range	L band: 1.15 to 1.4GHz
Input/output protection	Open and short circuit
VSWR	≥ -14 dB input and output return loss
Non-harmonic spurious output	> -65 dBc Typ.
Nominal drive	+20 dBm
Overdrive capability	Pin (nom) + 3 dBm (typ.)
Modulation formats	COFDM, QAM, CW
Reverse polarity protection	
Short circuit protection	
Gain flatness	±0.5 dB across operating band
Operating gain	5W: (17 dB typ.)
Output power	+37 dBm
ACPR	-30 dBc (typ.)
OIP3 @ Pop (typ)	5W: 37 dBm
Power added efficiency	15% typical
PA mute on PTO	
Status LED	ON/STBY
Supply voltage	+11 Vdc to +28 Vdc
Supply current	5W output: 3.8 A (typ.) @ 12 Vdc

Environmental

Operating temperature	-15 to +60 °C, Baseplate
Relative humidity	0 to 95%, non-condensing
Environmentally protected	

Mechanical

DC input connector	PTO 4 pin - A Pin - V+ - B Pin - forward power (normal high, goes low if o/p is 6 dB less than 37 dBm) - C Pin - GND - D Pin - Mute - pull low to mute
Housing	Milled aluminium (nickel plated)
Dimensions	H 35.5mm, W 121.5mm, L 169.5mm
Weight	Approx 1.5kg
RF input	SMA female (sealed)
RF output	TNC female (sealed)

Product Code:

SOLAMP5W-115140

Digital Microwave S-Band Linear RF Amplifier

The Cobham Digital RF amplifiers bring a new level of performance and reliability to microwave transmission of digitally modulated video. The linear RF power amplifier provides 5 watts of RF power into any load.

The linear amplifier features Cobham technology at its core and is ideal for digital transmission applications in surveillance, law enforcement, military UAV and UGV, airborne data/telemetry and television broadcasting. It is designed to amplify COFDM digitally modulated signals (QPSK, 16–QAM) and features broadband operation, while requiring a minimum of DC current.

Only minimum heat sinking is required for the high output models in normal operation. Packaged in a rugged aluminium housing, the amplifier construction lends itself to applications where extreme environmental conditions are the norm. Chassis connectors are environmentally protected, making the amplifier ideal for airborne operations where it can be mounted on a helicopter skid.

The integral lineariser minimises distortions typically associated with conventional RF amplification techniques. The amplifier is designed to meet the stringent requirements of the DVB–T spectral mask and may be used for COFDM, QPSK, QAM and CW applications.

Input and output port protection is provided with a VSWR better than 2.0:1 across the frequency band providing excellent matching into filters. Reverse polarity protection and short circuit protection are standard features.

Features:

- Designed for Digital Modulation
  – COFDM, QPSK, BPSK
- Ultra linear
- High efficiency
- Operating gain
  – 5W: 17 dB typical
- RF ports are open and short protected
- Short circuit/over–voltage protection
- Reverse polarity protection
- 11 – 28 Vdc input
- Rugged packaging
- Mute function

Specification:

Electrical

Frequency range	S band: 2.25 to 2.55GHz
Input/output protection	Open and short circuit
VSWR	≥ -14 dB input and output return loss
Non-harmonic spurious output	> -65 dBc Typ.
Nominal drive	+20 dBm
Overdrive capability	Pin (nom) + 3 dBm (typ.)
Modulation formats	COFDM, QAM, CW
Reverse polarity protection	
Short circuit protection	
Gain flatness	±0.5 dB across operating band
Operating gain	5W: (17 dB typ.)
Output power	+37 dBm
ACPR	-30 dBc (typ.)
OIP3 @ Pop (typ)	5W: 37 dBm
Power added efficiency	15% typical
PA mute on PTO	
Status LED	ON/STBY
Supply voltage	+11 Vdc to +28 Vdc
Supply current	5W output: 3.8 A (typ.) @ 12 Vdc

Environmental

Operating temperature	-15 to +60 °C, Baseplate
Relative humidity	0 to 95%, non-condensing
Environmentally protected	

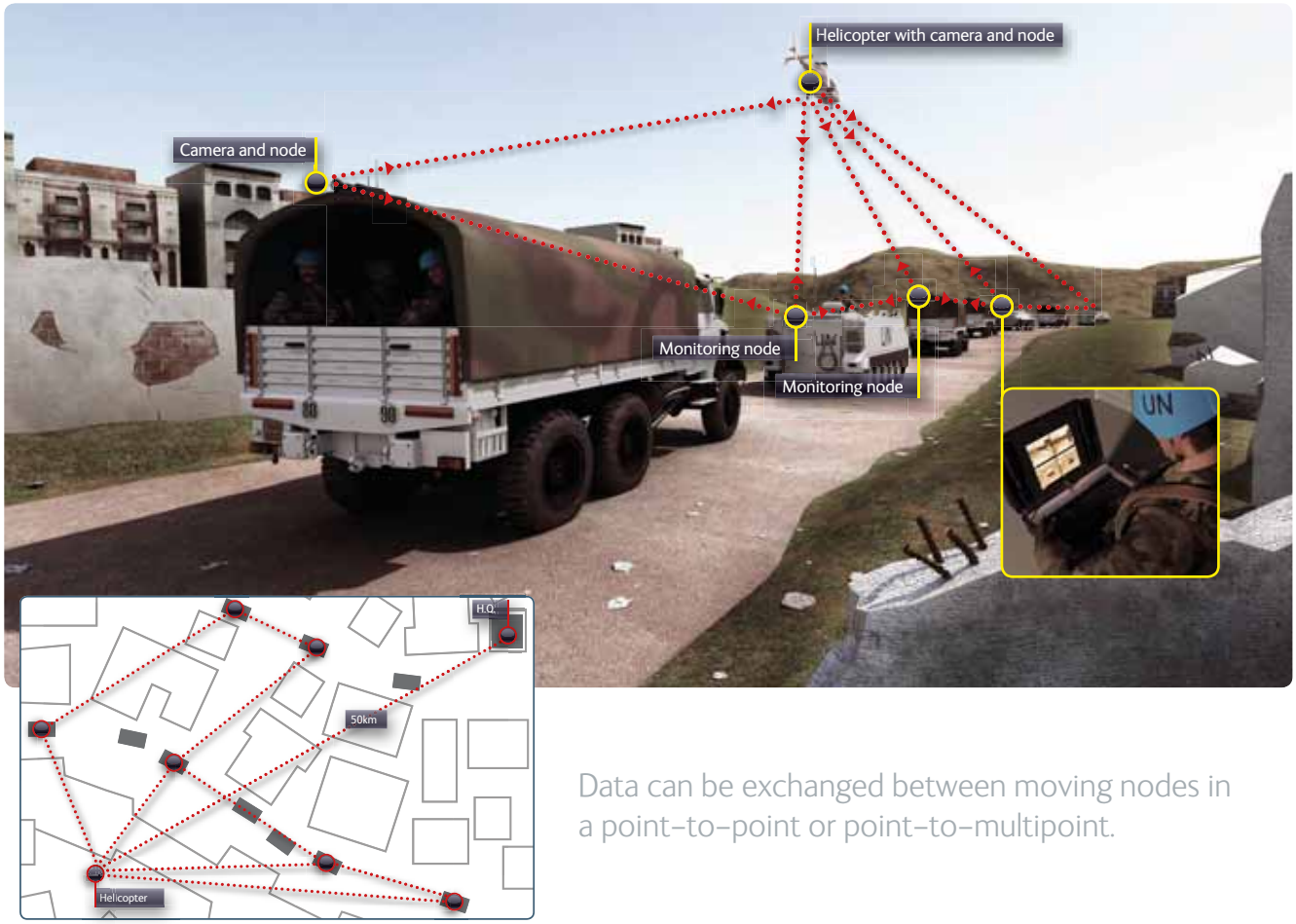
Mechanical

DC input connector	PTO 4 pin - A Pin - V+ - B Pin - not used - C Pin - GND - D Pin - Mute - pull low to mute
Housing	Milled aluminium (nickel plated)
Dimensions	H 28mm, W 121.5mm, L 169.5mm
Weight	Approx 1.5kg
RF input	SMA female (sealed)
RF output	TNC female (sealed)

Product Code:

SOLAMP5W-225255

COFDM IP Mesh Solutions



Data can be exchanged between moving nodes in a point–to–point or point–to–multipoint.

COFDM IP Mesh radios are the latest innovations in the expanding range of solutions with Cobham technology at their core.

Up to 8 of the radios can be combined into a ground–breaking IP mesh network – Cobham's first fluid, self–forming, self–healing mesh. Offering genuine non–line of sight coverage (COFDM), the system is truly mobile and therefore supplies a network with extended range – one which will deliver in environments too tough for other radio solutions to cope with.

Wireless networks no longer need to be static. Unlike other wireless options, the COFDM IP Mesh constantly readjusts itself as nodes move, working out which are in range and finding the best route to send data between them. When one node can no longer operate, the rest of the nodes can still communicate with each other – directly or through one or more intermediate nodes.

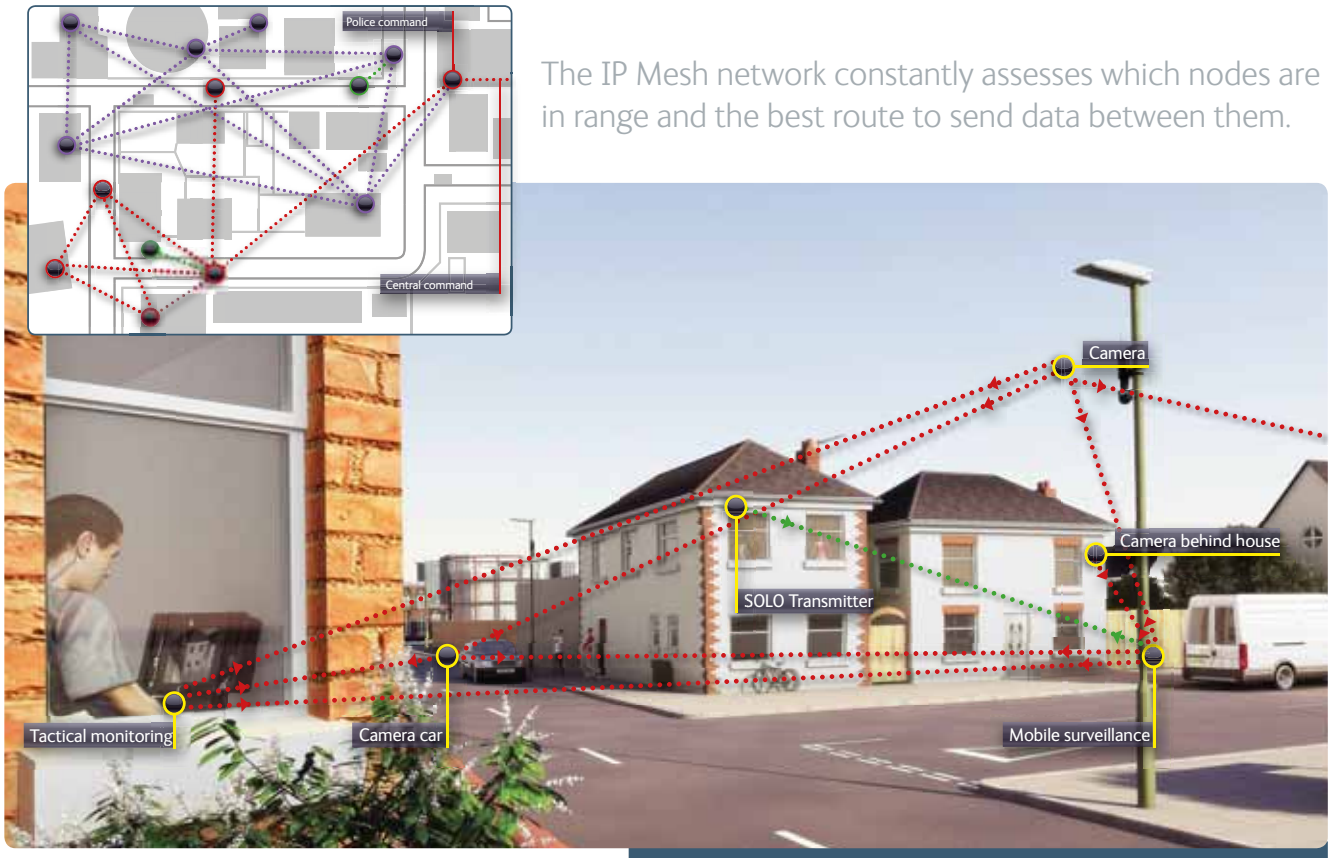
The highly flexible mesh topology means that data can be exchanged between moving nodes in a point to point or point to multipoint fashion, and range can be extended by using nodes as repeaters.

With a COFDM IP Mesh system, any shape of mesh network can be built:

- **A chain network:** Ideal for range extension, each node is placed at the outer range limit of the node before. These then chain together to feed information back. This network can be operated and maintained whilst mobile.
- **A star network:** Good for urban coverage, a central node is situated at a high point to act as a relay and all other nodes feed information back via that one, enabling bi–directional communications.
- **A random network:** Evolves organically to any shape.
- **A combined network:** Any of the above shapes can be linked – if they are operating at different frequencies, they can be combined at the IP layer.

COFDM IP Mesh from Cobham offers true networked integration of video, audio and GPS, with seamless transfer of MPEG4 video even when the mesh is reconfiguring to a different shape.

The robust, self–healing mesh architecture makes the product ideal for use in mobile surveillance applications, command and control, or advanced robotics.



The IP Mesh network constantly assesses which nodes are in range and the best route to send data between them.

Technical features

COFDM IP Mesh radios exchange data on a single frequency, simplifying frequency management. The entire mesh occupies just 2.5MHz (3 and 3.5MHz also available) of bandwidth. Far narrower than WiFi or WiMax bandwidth, this gives less noise in the channel, better sensitivity and increased spectrum for more users. Utilising proprietary Cobham narrowband video compression technology, very high quality video can be transmitted over the mesh network.

Custom–designed for the security and military markets, the IP Mesh radios employ the unique Cobham COFDM modulation scheme and therefore have excellent RF penetration and performance in the presence of multipath. An IP data rate of up to 3.5Mb/s is possible (data rate depends on mode, number of nodes, and range between nodes), and this can be symmetric to match network requirements. Diversity gives protection against fading, and there are built–in guard intervals and error correction.

Security of the entire mesh network can be ensured by the use of the optional AES128 or AES256 encryption. Control of the whole deployed mesh is achieved using a comprehensive web browser application with a built–in user–loaded mapping facility and PTZ controls.

The COFDM IP Mesh solution is available in a Plain, or Robust (IP66) enclosure with 1W for long range. It can also be upgraded with composite video and audio, input and output options.

KEY: Mesh 1 Mesh 2 SOLO link out

IP mesh systems enable the backhaul of multiple audio feeds for monitoring by surveillance teams.

Networked integration of video, audio and GPS, with seamless transfer of MPEG4 video even during network reconfiguration.

Robust, self-healing mesh architecture makes the COFDM IP Mesh ideal for use in mobile tracking applications.

A Mesh network takes data from its nodes and broadcasts, non-line of sight, to a nearby police command point.

Data can be filtered and sent onward to central command centres from a local monitoring point.

COFDM IP Mesh Solutions

COFDM IP Mesh Features:

- Single frequency fluid self–healing mesh, up to 8 nodes
- Immediate joining as additional nodes come within range
- Multiple interconnected meshes can be operated in the same area
- 2.5, 3, 3.5MHz bandwidth, giving typically 3.5Mb/s network capacity
- IP interface as standard for easy connection of cameras, sensors and data
- GPS and/or RS232 interface and mapping software available
- Web browser control interface
- Web browser mapping interface (user loaded)
- RF Silent mode – listen only, transmit only when required
- Mesh allows range extension by making chains, or easy bi–directional relays*
- Composite video and audio input options for streaming video
- Composite video and audio output options for connection to recorders
- Easy control of cameras for PTZ
- Encryption for security with AES128/256
- IP Mesh capability
- Automatic Adaptive Modulation
- NETAV Video and Audio Input Interface
  (For composite video and audio out use Net IPH IP Hardware decoder)

For more information, please refer to the following pages:

NETNode IP Mesh Radio (Plain) - P33
NETNode IP Mesh Radio (Robust) - P35

* Starred items in text will be supported in future releases

NETNode IP Mesh Radio (Plain)

The Cobham NETNode IP mesh radios are the latest innovations in the expanding range of solutions that feature Cobham technology at their core.

NETNode IP radios can be combined in a fluid self forming, self healing mesh containing up to eight radios. The NETNode radios within the mesh exchange data on a single frequency, simplifying frequency management. The entire mesh occupies just 2.5MHz of bandwidth (3 and 3.5MHz also available). The NETNode radios employ the unique Cobham COFDM modulation scheme and therefore offer excellent RF penetration and performance in the presence of multipath.

The NETNode mesh radios can provide up to 3.5Mb/s of IP data (data rate depends on mode, number of nodes and range between nodes). This available IP data rate can be used to exchange IP data traffic between nodes.

The highly flexible mesh topology means that data can be exchanged between nodes in a point to point or multi–point fashion, range can be extended by using nodes as repeaters. The self forming, self healing mesh architecture makes the NETNode product ideal for use in mobile surveillance applications, command and control, or advanced robotics.

The NETNode can be connected to third party cameras using the NETAV option. Alternatively, there are two dedicated PTZ camera solutions available for direct connection to the NETNode: NETPTZ* is a high performance, high quality day/night PTZ camera for long range and overt surveillance; NETuPT is a miniature pan and tilt camera suitable for up–close surveillance. The NETuPT and NETPTZ* options require the NETAV option to be fitted.

Security of the entire mesh network can be ensured by the use of the optional AES128 or AES256 encryption.

Control of the deployed mesh is achieved using the inbuilt web browser or comprehensive Mesh Commander* PC application. This software suite, based around a mapping display, is used to configure and monitor the mesh, and to control its nodes and cameras. Video can be viewed on the PC device using the Mesh Commander* software or, if IP Hardware Decoder devices are employed, video can be viewed on conventional monitors and recorded on conventional recorders. Remote users simply wishing to monitor the network, control cameras or view video, can make use of the Mesh Viewer* application available for smaller hand held devices such as PDAs.

Specification:

Interfaces	
RF Interfaces (Antenna 1 and 2)	SMA
Power	Lemo
Ethernet 1	RJ45
Ethernet 2	RJ45
Control and misc I/O	DType
Camera	Lemo

Typical range	
NETNode-P-217250 (1W)	Non Line of Sight Light urban 500-700m Line of Sight 40km+

RF Interfaces	
Antenna 1	Switched transmit receive antenna
Antenna 2	Receive only antenna

RF and modulation	
Output frequency	340 to 470MHz, 1000 to 1500MHz, 2170 to 2500MHz, 4500 to 5000MHz*, or 5500 to 6000MHz*
Tuning step size	125kHz step
Output power	+30 to 0dBm in 0.25dB steps
Bandwidth	2.5, 3 or 3.5MHz
Mesh capacity	Up to 3.5Mb/s
Modulation	COFDM 360 carrier modulation
Carrier Modulation	BPSK, QPSK or 16QAM (adaptive)
FEC rate	FEC1/2
Receive diversity	Maximum Ratio Combining
Receive sensitivity	-98dBm for most robust mode

IP interface	
Primary and secondary ethernet electrical	100BaseT Ethernet
IP address allocation	DHCP dynamic IP addressing
Video and audio streaming format	Multicast VLC compatible RTSP Support

A/V input option	
Video input	Composite or SDI (selectable)
Video format	525 or 625 (PAL or NTSC)
Video encoding	MPEG4
Quality	User selectable quality level
Video bit-rate	2.4Mb/s to 50kb/s (variable)
Resolution	704, 576, 480 or 352
Frame rate	Self selecting 30 to 2F/s
Stills capture feature	HiRes JPEG file
Audio input	Line level or microphone level
Audio sample frequency	48KHz
Audio encoding	MPEG audio layer 1 G726
Audio bit-rate	384 to 64kb/s

Store and forward options*	
Storage format	SD card interface (Secure Digital card)
Record options	Continuous or triggered
Files download	From web browser interface
Video and audio clip size	30 seconds

Open Audio comms channel (shared voice channel)	
Multi-user audio comms channel	Interface microphone level/headphone o/p
Compression	G726 32kbit audio

Encryption	
Type	AES128 or AES256 (both optional)

GPS	
Dedicated GPS interface	RS232

Data interface	
RS232/RS485 data input (shared with user camera control)	1K2 to 115K2 baud switchable With UDP and TCP routing protocol

NETNode IP Mesh Radio (Plain)

PTZ camera interface (with AVI fitted)

User camera type	PAL or NTSC
User camera control	From Mesh Commander* PC application using VISCA, PELCOD or PELCOP From any user supplied desk controller Requires RS232 interface
NETNode bespoke cameras	NETPTZ long range PTZ NETuPT short range pan tilt

Triggers*

Trigger source	Third party equipment remote trigger (e.g. ANRP, PIR, etc) User pre-set time trigger General purpose trigger input Video motion detection (NETAV option) Audio level (NETAV)
Trigger action	Start to transmit (silence mode) Activate video stream (NETAV option) Activate audio stream (NETAV option) Move camera to preset position General purpose trigger output Activate local store feature

Control

Local control	LEDs power and mesh status
Remote control	Mesh Commander* PC application Full control of all parameters in a map based application

Physical

Sealing	No IP rating - splash proof
Dimensions	H 155mm, W 153mm, D 45mm
Mounting options base unit	Through hole screws
Weight	1.24kg (including heat sink)

Power

DC input	12-14V
Power consumed 1W	14W

Environment

Temperature range	-10 to 50 deg C

Connectors

Power: Female Lemo 4 pin 0B	Pin 1 +12VDC Pin 2 +12VDC Pin 3 GND Pin 4 GND
Ethernet 1: RJ45 connector	Ethernet OP Ethernet ON Ethernet IP Ethernet IN
Ethernet 2: RJ45 connector	Secondary Ethernet OP Secondary Ethernet ON Secondary Ethernet IP Secondary Ethernet IN
DB-15 (male)	Pin 1 RS485 TX+ Pin 2 RS485 TX- Pin 3 GND Pin 4 RS485 RX+ Pin 5 RS485 RX- Pin 6 GND Pin 7 Engineering use only Pin 8 Engineering use only Pin 9 GNS Pin 10 RS232 Control TX Pin 11 RS232 Control RX Pin 12 GND Pin 13 Radio Controller Trainer + Pin 14 Radio Controller Trainer - Pin 15 GND

PLUS the following two optional connectors for use when an encoder card is fitted

Female Lemo 5 pin 0B	Pin 1 Audio right channel Pin 2 Audio left channel Pin 3 Ground for audio Pin 4 Composite video Pin 5 Ground for composite video
Female Lemo 3 pin 0B (for RS232 input when encoder is fitted)	Pin 1 TX Pin 2 RX Pin 3 GND

Options:

NETNode-AVI-UP2P	Composite Video and Audio input for COFDM IP Mesh Node Plain
NETPTZ*	Pan, Tilt and Zoom camera for NETNode
NETuPT	Micro Pan and Tilt camera option for NETNode
NETIPHW	IP in with either 1,2 or 4 Video and 2,4 or 8 Audio Out Decoder
Mesh Commander*	
Mesh Viewer*	

Product Code:

NETNode-P-034047	IP Mesh Node 1W 340-470MHz excl ants, incl PSU12/4
NETNode-P-115140	IP Mesh Node 1W 1.15-1.40GHz excl ants, incl PSU12/4
NETNode-P-165238	IP Mesh Node 1W 1.65-2.38GHz excl ants, incl PSU12/4
NETNode-P-217250	IP Mesh Node 1W 2.17-2.50GHz excl ants, incl PSU12/4
NETNode-P-440500	IP Mesh Node 1W 4.50-5.00GHz excl ants, incl PSU12/4
NETNode-P-550600	IP Mesh Node 1W 5.50-6.00GHz excl ants, incl PSU12/4

* Starred items will be supported in future releases

NETNode IP Mesh Radio (Robust)

The Cobham NETNode IP mesh radios are the latest innovations in the expanding range of solutions that feature Cobham technology at their core.

NETNode IP radios can be combined in a fluid self forming, self healing mesh containing up to eight radios. The NETNode radios within the mesh exchange data on a single frequency, simplifying frequency management. The entire mesh occupies just 2.5MHz of bandwidth (3 and 3.5MHz also available). The NETNode radios employ the unique Cobham COFDM modulation scheme and therefore offer excellent RF penetration and performance in the presence of multipath.

The NETNode mesh radios can provide up to 3.5Mb/s of IP data (data rate depends on mode, number of nodes and range between nodes). This available bit–rate can be used to exchange IP data traffic between nodes.

The highly flexible mesh topology means that data can be exchanged between nodes in a point to point or multi–point fashion, range can be extended by using nodes as repeaters. The self forming, self healing mesh architecture makes the NETNode product ideal for use in mobile surveillance applications, command and control applications, or advanced robotics.

The NETNode can be connected to third party cameras using the NETAV option. Alternatively, there are two dedicated PTZ camera solutions available for direct connection to the NETNode: NETPTZ* is a high performance, high quality day/night PTZ camera for long range and overt surveillance; NETuPT is a miniature pan and tilt camera suitable for up–close surveillance. The NETuPT and NETPTZ* options require the NETAV option to be fitted.

Security of the entire mesh network can be ensured by the use of the optional AES128 or AES256 encryption.

Control of the deployed mesh is achieved using the inbuilt web browser or comprehensive Mesh Commander* PC application. This software suite, based around a mapping display, is used to configure and monitor the mesh and wider Cobham surveillance systems, and to control its nodes and cameras. Video can be viewed on the PC device using the Mesh Commander* software or, if IP Hardware Decoder devices are employed, video can be viewed on conventional monitors and recorded on conventional recorders.

Specification:

Interfaces	
RF Interfaces (Antenna 1 and 2)	NType
Power and Ethernet	Amphenol 38999 Series 3
Control and misc I/O	Amphenol 38999 Series 3
Camera	Amphenol 38999 Series 3

Typical range	
NETNode-R-217250 (1W)	Non Line of Sight Light urban 500-700m Line of Sight 40km+

RF Interfaces	
Antenna 1	Switched transmit receive antenna
Antenna 2	Receive only antenna

RF and modulation	
Output frequency	340 to 470MHz, 1000 to 1500MHz, 2170 to 2500MHz, 4500 to 5000MHz*, or 5500 to 6000MHz*
Tuning step size	125kHz step
Output power	+30 to 10dBm in 0.25dB steps
Bandwidth	2.5, 3 or 3.5MHz
Mesh capacity	Up to 3.5Mb/s
Modulation	COFDM 360 carrier modulation
Carrier Modulation	QPSK/16QAM (adaptive)
FEC rate	FEC1/2
Receive diversity	Maximum Ratio Combining
Receive sensitivity	-98dBm for most robust mode

IP interface	
Primary and secondary ethernet electrical	100BaseT Ethernet
IP address allocation	DHCP dynamic IP addressing/Static IP
Video and audio streaming format	Multicast VLC compatible RTSP Support

A/V input option	
Video input	Composite or SDI (selectable)
Video format	525 or 625 (PAL or NTSC)
Video encoding	MPEG4
Quality	User selectable quality level
Video bit-rate	2.4Mb/s to 50kb/s (variable)
Resolution	704, 576, 480, 352 or SIF (1/4 Resolution)
Frame rate	Self selecting 30 to 2F/s
Stills capture feature	HiRes JPEG file*
Audio input	Line level or microphone level
Audio sample frequency	48KHz
Audio encoding	MPEG audio layer 1 G726
Audio bit-rate	384 to 64kb/s

Store and Forward options*	
Storage format	SD card interface (Secure Digital card)
Record options	Continuous or triggered
Files download	From web browser interface/RTSP
Video and audio clip size	30 seconds

Open Audio comms channel (shared voice channel)	
Multi-user audio comms channel	Interface microphone level/headphone o/p
Compression	G726 32kbit audio 8KHz sampling and mute

Encryption	
Type	AES128 or AES256 (both optional)

GPS	
Dedicated GPS interface	RS232/RS485

Data interface	
RS232/RS485 data input (shared with user camera)	1K2 to 115K2 baud switchable With UDP and TCP routing protocol control)

NETNode IP Mesh Radio (Robust)

PTZ camera interface (with AVI fitted)	
User camera type	PAL or NTSC
User camera control	From Mesh Commander* PC application using VISCA, PELCOD or PELCOP From any user supplied desk controller Requires RS232/RS485 interface
NETNode bespoke camera	NETPTZ long range PTZ NETuPT short range pan tilt

Triggers*	
Trigger source	Third party equipment remote trigger (e.g. ANRP, PIR, etc) User pre-set time trigger General purpose trigger input Video motion detection (NETAV option) Audio level
Trigger action	Start to transmit (silence mode) Activate video stream (NETAV option) Activate audio stream (NETAV option) Move camera to preset position General purpose trigger output Activate local store feature

Control	
Local control	LEDs power and mesh status
Remote control	Mesh Commander* PC application Full control of all parameters in a map based application

Physical	
Sealing	IP66
Dimensions	H 180mm, W 180mm, D 65mm
Mounting options base unit	Tripod mount and through hole screws
Mounting options adaptation plate	Pole mounting kit
Weight	1.80kg

Power	
DC input	12-14V
Power consumed 1W	14W

Environment	
Temperature range	-20 to 50 deg C

Options:

NETNode-AVI-UP2R	Composite Video and Audio input for COFDM IP Mesh Node Robust
NETPTZ*	Pan, Tilt and Zoom camera for NETNode
NETuPT	Micro Pan and Tilt camera for NETNode
NETIPHW	IP in with either 1,2 or 4 Video and 2,4 or 8 Audio Out Decoder
Mesh Commander*	
Mesh Viewer*	

Product Code:

NETNode-R-022024	IP Mesh Node 1W 220-240MHz excl ants, incl PSU12/4
NETNode-R-034047	IP Mesh Node 1W 340-470MHz excl ants, incl PSU12/4
NETNode-R-115140	IP Mesh Node 1W 1.15-1.40GHz excl ants, incl PSU12/4
NETNode-R-165238	IP Mesh Node 1W 1.65-2.38GHz excl ants, incl PSU12/4
NETNode-R-217250	IP Mesh Node 1W 2.17-2.50GHz excl ants, incl PSU12/4
NETNode-R-440500	IP Mesh Node 1W 4.40-5.00GHz excl ants, incl PSU12/4
NETNode-R-550600	IP Mesh Node 1W 4.50-5.00GHz excl ants, incl PSU12/4

* Starred items will be supported in future releases

NETLink Store and Forward Solutions

The NETLink product, which has Cobham technology at its core, allows Cobham equipment to be connected to IP networks. In its basic form the NETLink can be connected to the output of any standard Cobham receiver, and translates the receiver signal into a streaming video service.

NETLink can be set to stream at rates suitable for either private or public networks. In private network mode it will stream full frame rate, full resolution video for maximum quality. When connected to public networks where the data rates are limited, it will produce a reduced frame rate and resolution stream at a data rate appropriate for the network[1]. NETLink uses AES128 or AES256 encryption to ensure the security of the transmission. These transmissions can then be decoded in software using the NETEPLAY–S application or in hardware using the NETIPH IP Hardware (Private Network mode only) decoder. The NETLink also has an RS232 output suitable for control of any PTZ camera that might be connected to it. NETLink is fitted with a USB interface for WiFi connectivity.

NETLink's video streams can also be delivered to BlackBerry smartphones for use in the field. Users can choose a video stream from multiple cameras and NETLinks. BlackBerrys can be CESG–accredited to Restricted.

NETLink is supplied in a sealed rugged aluminium box suitable for long term security deployments.

The NETLink product can be upgraded with some powerful options:

- **NET-DVRI-UP** – Upgrading the NETLink with an internal or remote DVR option, which creates a sophisticated 'store and forward' product, allows the viewing of video across real world low bitrate public networks, such as 3G or the internet. The DVR option records the incoming high quality video to a local hard disk, whilst streaming out a live low bitrate thumbnail service to the user at a capacity which matches that available on the public network. If the user is interested in something seen on the thumbnail stream, then the high quality video can be retrieved in non–real time by download from the hard disk. To assist the user to retrieve the video of interest, NETLink offers a sophisticated range of time logging and trigger functions, and also fast forward and rewind viewing options. It can be connected to external sensors to trigger recording or build a time–stamped graph of events. By clicking on a specific event, the software will automatically download the corresponding video fragment. NetLink is a multi–cast product when used on a private LAN or a uni–cast product when used over the internet.
- **NET-AV-UP** – Upgrading the NetLink with the video input option enables the NetLink to connect direct to a camera, in addition to being able to connect to the output of a Cobham microwave receiver. This function enables IP video and audio transmission across public and private networks.

1 ADSL/3G/Satellite Modem required.

Features:

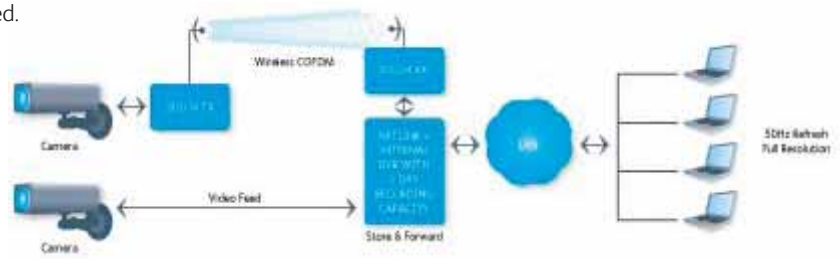
- 10/100 Ethernet port
- Streaming onto public or private networks
- Transcoding to low frame rate/resolution to match available capacity on public networks
- PTZ output port to support local camera (multiple PTZ protocols supported)
- AES128/256 encryption for end–to–end security
- Local video input option
- Support for built–in remote DVR option with video download and trigger logging
- Runs on 8–16 Volt DC, or 100–240 Volt AC with included power supply unit.
- USB Key or SD card based User login
- USB port Fast User configuration
- Multiple User 'levels'

Features (BlackBerry mode)

- Real–time streaming video from NETLink cameras to Blackberry Smartphone
- Easily installed on existing BlackBerry deployments
- Secure end–to–end AES encryption, accredited to Restricted
- Extendable with further NETLink devices'.

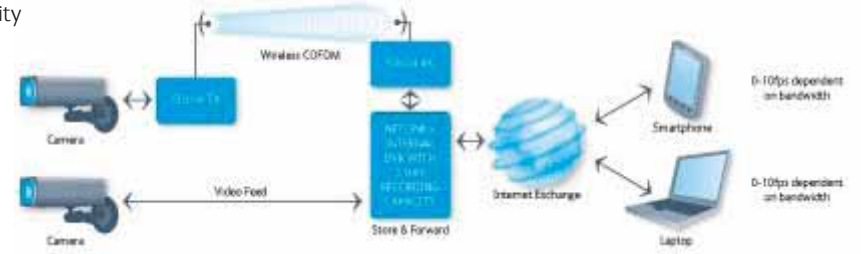
Option A - NETLink receives direct video input for 'store and forward' and multi-casts over Private Networks

- NETLink can be upgraded to receive direct AV feed.



Option B - NETLink receives direct video input for 'store and forward' and uni-casts over the internet

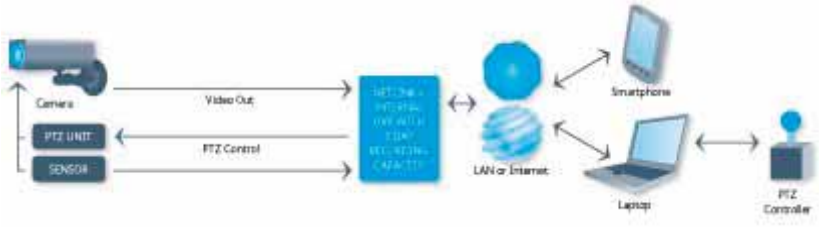
- NETLink offers a variety of 'Store and Forward' options enabling the capture of evidential quality video from remote locations.



NETLink Store and Forward Solutions

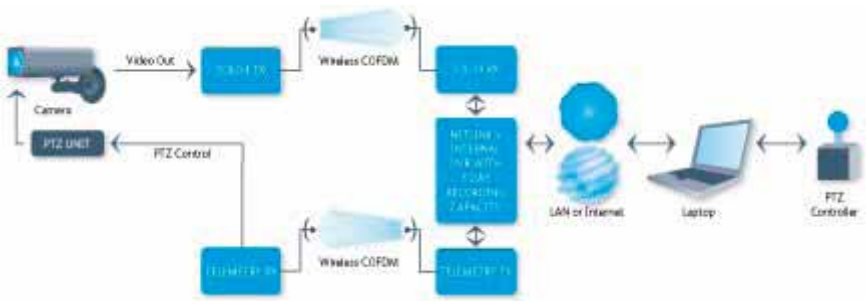
Option D - NETLink can be used to view and control PTZ camera over IP Networks

- NETLink also has an RS232 output suitable for control of any PTZ camera that might be connected to it.



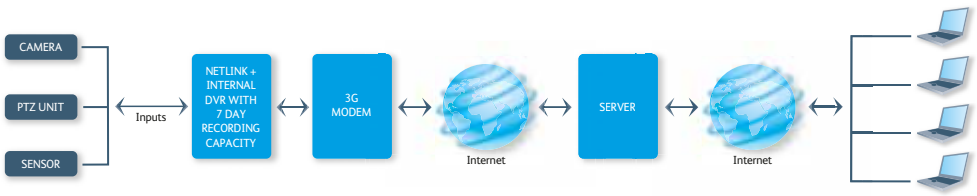
Option E - NETLink offers a sophisticated range of time logging and trigger functions, and also fast forward and rewind viewing options

- NETLink can be upgraded to a high capacity remote DVR option
- The NETLink range offers a variety of IP Solutions for integration into numerous wireless surveillance applications.



Option E - Server-based scenarios

- Multiple users can connect to multiple NETLinks via a server.



Specification:

Input	
Composite Video 1	5 pin OB Lemo (optional)
Audio 1, 2	5 pin OB Lemo (optional with AV Input option)
Chaining Input	6 pin Lemo
Trigger I/O	6 pin Lemo
Power	4 pin OB Lemo
Output	
PTZ Control Out	3 pin Lemo
Network/Modem Ports	
Ethernet Port 1	RJ45
USB Key Configuration	
USB Host Port 1	USB-A
Network Interfacing	
Ethernet	10/100Mb/s
Storage Capacity	
Internal Hard Disk Capacity	250Gb (NETLINK DVRI)
Video	
Line Standard	PAL/NTSC
Resolution	704, 528, 480, 352
Coding Mode	MPEG2
Thumbnails	
Image Standard	Encrypted JPEG
Resolution	User Controllable
Frame Rate	0-10fps depending on network bandwidth
PTZ Standards	
Forward Vision Sony Visca Pelco B Pelco P	

Audio	
Output	Line Level
Sample Rate	32KHz, 16KHz, 8KHz
Bits per Sample	12 or 8 bit
Encryption	
Format	ABS 32 bit as standard AES128/256 (optional)
Control	
Unit Set-up	Ethernet/RS232/USB key control via PC application
Physical	
Rugged Aluminium Box	L 150mm, W 200mm, H 70mm
Power	
DC Input	9 to 16V Reverse Polarity Protected
Power Consumption	From 10W depending on options fitted
Environment	
Temperature Range	-10 to +50 deg C

Product Code:

NETLink	IP Streamer
NET-AV-UP	Upgrade for direct composite Video/Sensor input
NET-DVRI-UP	Upgrade for Internal 200Gbyte Hard Drive
NETEPLAY-S	Software player for streaming only (MPEG2 only)
NETEPLAY-SSF	Software player to fully access store and forward functions
NETIPHW	IP Hardware Decoder

NETLink Storm Robust Store and Forward Solution

NETLink Storm

The NETLink Storm is the next generation robust solution for transmitting video and audio across both private and public networks, based on the successful NETLink. In addition, it provides an all–in–one solution allowing for quick indoor as well as outdoor deployment, with integral support for ADSL, dual 3G networks, WiFi and COFDM communication.

The NETLink Storm, which features Cobham technology at its core, allows Cobham equipment and analogue cameras to be connected to IP networks via live streaming and providing 24/7 store and forward.

An all–in–one case solution, NETLink Storm is a tailored product for remote surveillance, aimed specifically at the covert intelligence gathering market. Its compact, sealed, robust Pelicase design enables secure, rapid–drop deployment, and features an internal screen for camera positioning. Power up and down can be controlled locally or via remote control and, if the case is tampered with or a hard wired trigger occurs, alerts can be sent by SMS or email.

NETLink Storm can be set to stream at rates suitable for either private or public networks. In private network mode it will stream full frame rate, full resolution video for maximum quality. When connected to public networks where the data rates are limited, it will produce a reduced frame rate and resolution stream at a data rate appropriate for the network.

NETLink Storm uses AES128 or AES256 encryption to ensure the security of the video data. These transmissions can then be decoded in software using the NETEPLAY–S application, or in hardware using the NETIPHW IP Hardware decoder[1]. The NETLink Storm also has an RS232 output suitable for control of any PTZ camera that might be connected to it.

The NETLink Storm provides a number of very powerful features:

- All–in–one robust case solution. The NETLink Storm is constructed for outdoor deployment, being completely waterproof and sealed when the lid is closed. The external Amphenol connectors allow robust connections to cameras, triggers, antennas and power. The large heat sinks allow for heat dissipation and the case contains everything needed for both short– and long–term deployment.
- Built–in auto switch ADSL/dual–3G/WiFi. The NETLink Storm includes integral support for ADSL, WiFi and dual network 3G communication with fast automatic switch between them to ensure maximum failover connectivity. Any of the communication methods can be switched on and off as required.
- Dual hotswap hard drives. Two built–in hard drives allow the NETLink Storm to act as an advanced store and forward solution, recording full evidence quality audio and video locally, while streaming live across any network.
- High speed local download via WiFi link. If the NETLink Storm is deployed without physical access, the built–in WiFi connection can be activated temporarily and the full quality audio and video can be downloaded covertly from a distance.
- Remote control for local power down/up. The remote control can be used to power down the NETLink Storm completely to conserve power, and power up only when needed.
- Built–in battery pack. The integral battery will allow the NETLink Storm to run for a few hours without external power for either short–term deployments or to guard against interruptions due to power failures.

NETLink Storm Robust Store and Forward Solution

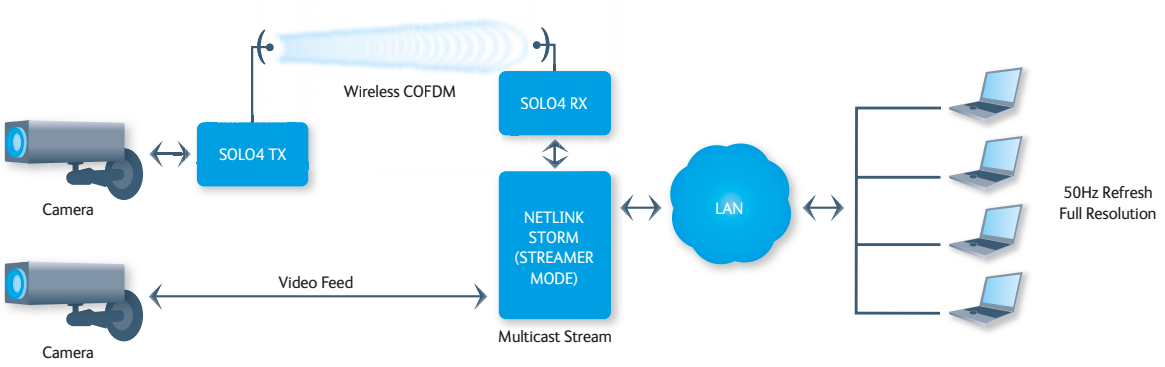
- Triggers and tamper alerts via SMS and email. The NETLink Storm comes with a built–in tamper alert sensor, as well as support for external triggers. If the box is disturbed or moved at any point, an alert trigger is generated, which can be sent to the right person via SMS and email, as well as being logged as part of the recording.
- Screen for camera positioning. The internal screen can be used for camera positioning and can be switched off completely to conserve power.
- Local video link via COFDM transmitter. The NETLink Storm includes a COFDM transmitter for wireless high quality video links to other Cobham equipment.

NETLink Storm is a multi–cast product when used on a private LAN or a uni–cast product when used over the internet.

Standard NETLink features

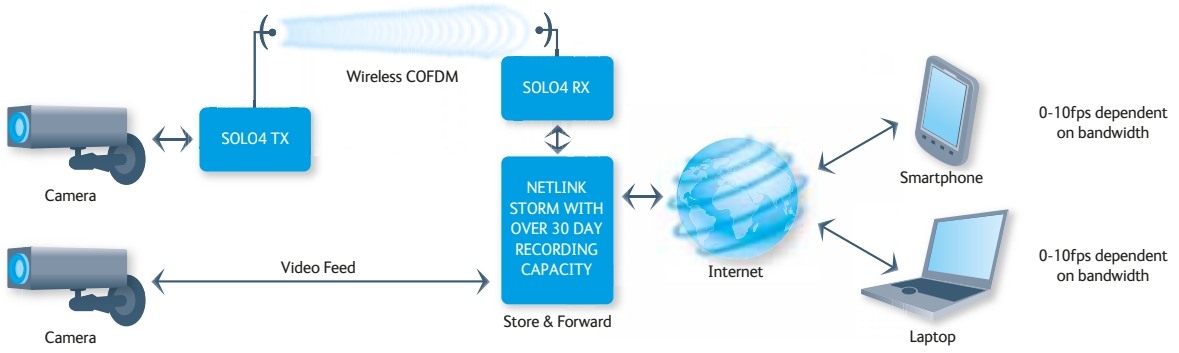
- Input from analogue camera or Cobham COFDM Receiver
- Full quality streaming onto private networks
- Adaptive streaming across contended public networks
- Supports transmission over 3G/2G wireless networks
- Better image quality with additional user configuration
- Different access levels for supervisor, gold and silver users
- PTZ ports to support local camera
- PTZ control for cameras supporting Forward vision, Sony Visca, Pelco B and Pelco P.
- Support for up to 16 cameras via Kramer video switch
- AES128/AES256 encryption for security

Option A - NETLink Storm receives direct video input for multicasting over Private Networks



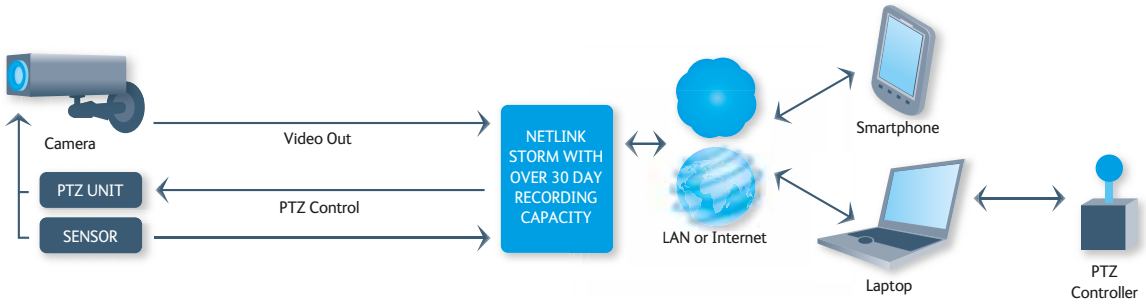
Option B - NETLink Storm receives direct video input for 'store and forward' and uni-casts over the internet

- NETLink Storm offers a variety of 'Store and Forward' options enabling the capture of evidential quality video from remote locations.



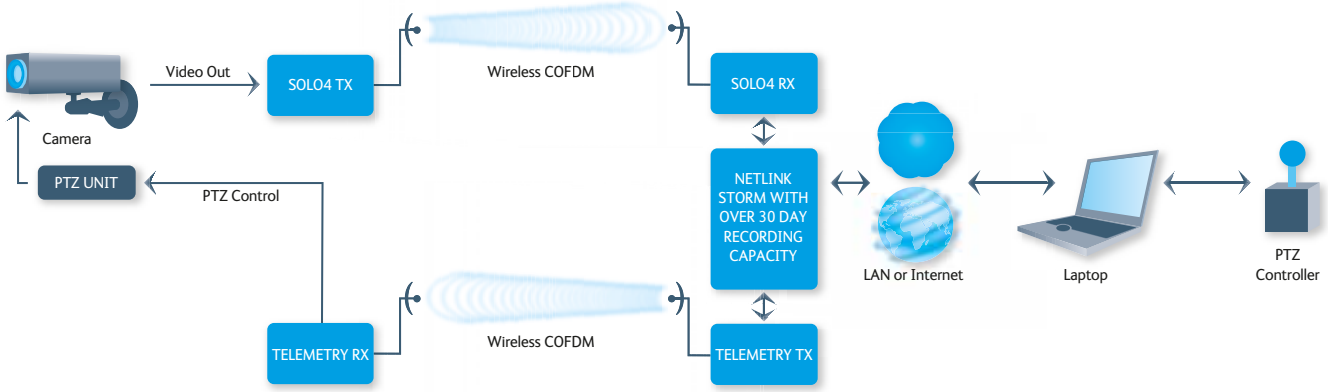
Option C - NETLink Storm can be used to view and control PTZ camera over IP Networks

- NETLink Storm also has an RS232 output suitable for control of any PTZ camera that might be connected to it.



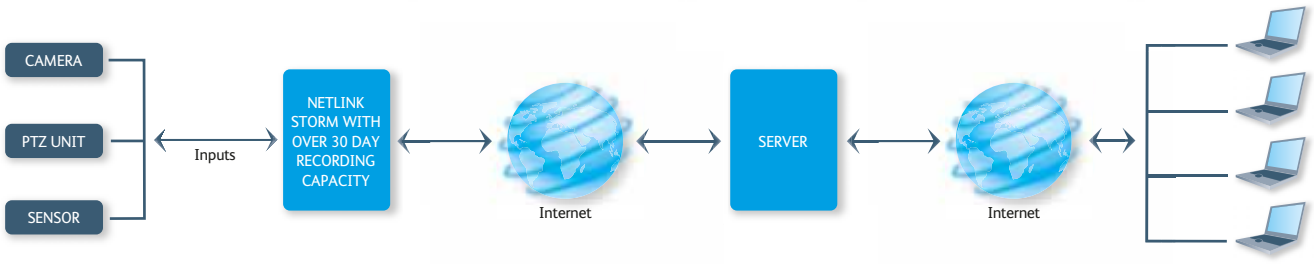
Option D - NETLink Storm offers a sophisticated range of time logging and trigger functions, and also fast forward and rewind viewing options

- NETLink Storm is a high capacity remote DVR system
- The NETLink Storm supports a variety of IP Solutions for integration into numerous wireless surveillance applications.



Option E - Server based scenarios

- The NETLink Server enables multiple simultaneous users.



NETLink Storm Robust Store and Forward Solution

Specification:

Interfaces	
Power/Ethernet	6-way Amphenol
Breakout cable	
Power input	4 pin OB Lemo socket
Secondary Ethernet	RJ45
Source 1	19-way Amphenol
Breakout cable	
Camera Power (12V)	Female bullet
Composite video input	BNC
Audio input 1, 2	5 pin OB Lemo socket
PTZ interface 1	9-way D-Type
Trigger input 1	Female bullet
Source 2/Misc	22-way Amphenol
Breakout cable	
Chaining input + control	6 pin Lemo socket
PTZ interface 2	9-way D-Type
Trigger input 2	Female bullet
Internal modem port	RJ45
Audio Monitoring	
Amplified Stereo output	3.5mm Stereo jack socket
Storage	
USB Hard disk port 1	USB Mini-B
USB Hard disk port 2	USB Mini-B
Configuration	
USB configuration port	USB-A
RS232 configuration port	3 pin Lemo socket
RF	
3G	N-Type
WiFi	2 x N-Type
COFDM out	N-Type
FM power switch	N-Type
WAN	
ADSL	Robust RJ11

Network Interfacing	
Mobile data networks	2G, 3G, HSDPA
Ethernet	10/100Mb/s
WiFi	802.11a/b/g
ADSL	ADSL1, ADSL2+

Storage	
Supplied Hard Disk Capacity	1 TB (2 x 500 GB)
Optional solid state storage available	

Video	
Line Standard	PAL/NTSC
Resolution	704, 528, 480, 352
Coding Mode	MPEG2

Thumbnails	
Image Standard	Encrypted JPEG
Resolution	User Controllable
Frame Rate	0-10fps depending on network bandwidth

Audio	
Input	Line Level
Sample Rate	32KHz, 16KHz, 8KHz
Bits per Sample	12 or 8 bit

Encryption	
Format	ABS 32 bit as standard AES 128/256 (optional)

Control	
Unit Set-up	PC Application via Ethernet and USB Key configuration

Physical	
Robust Storm Case	L 439mm, W 321mm, H 166mm

Power	
DC Input	9 to 16V Reverse Polarity Protected
Power Consumption	From 10W depending on configuration

Environment	
Temperature range	-10 to +50 deg C

Product Code:

NETLinkS-100150	Robust NETLink 1.0-1.5GHz
NETLinkS-162250	Robust NETLink 1.62-2.5GHz
NET-AV-UP	Upgrade for direct composite Video/Sensor input
NET-DVRI-UP	Upgrade for Internal 200Gbyte Hard Drive
NETEPLAY-S	Software player for streaming only (MPEG2 only)
NETEPLAY-SSF	Software player to fully access store and forward functions
NETIPHW	IP Hardware Decoder

Nugget – Wireless Sensor Network Node

Cobham's Wireless Sensor Network Node is a fully portable surveillance sensor system capable of detecting the presence of an intruder via internal and/or external sensors and sending an alarm to a central receiving node.

Featuring Cobham technology at its core, the complete system consists of one (or more) nodes configured as detector nodes and one node configured as a destination node, which connects to a monitoring station. Each node is equipped with a number of internal sensors:

- Short range PIR for detecting the presence of personnel up to 5m range
- GPS location receiver
- Ambient light sensor for detecting changes in illumination
- Tamper detect to send an alarm if the node is moved
- Trip wire/break detector to send an alarm if a trip wire is activated.

External sensors can be added to the external sensor bus connectors. This increases the detection capabilities of the device and allows external sensors to be used alongside internal ones to aid in the classification and confirmation of detected targets.

The product is supplied with an external rechargeable battery pack for rapid interchange, providing up to 30 days' continuous use battery life (dependent on operating mode). It can also run from an external DC supply using the interface lead.

The Wireless Sensor Network Node is ideal for covert surveillance, providing indication of activity within range of any of its deployed sensors. The nodes can be configured for operational requirements before deployment and configuration of individual units can then be changed over the wireless network to cater for changes in detection circumstances, such as varying the sensitivity of sensors. Each unit is able to periodically send 'confidence' signals to the central receiving node.

Features:

- Multihop mesh capability
- Re–configurable transceiver frequency within the band
- Internal PIR sensor
- GPS included for position and timestamp of alarm
- Internal tamper/seismic sensor
- Ambient light sensor
- Break (trip) sensor
- External sensor interface capable of adding further sensors as required
- Removable battery pack
- External charger circuit
- Compact weatherproof housing compliant to IP67
- Up to 16 nodes in a Network/Mesh

Nugget - Wireless Sensor Network Node

Specification:

Inputs		
RF antenna	SMA Female 50 Ohm	

Outputs		
External sensor bus	7 way connector x2	

RF		
Frequency bands		
1	868.059-869.621 MHz	41 channels
2	433.05-434.79 MHz	
3	140.0-180.0 MHz	25 KHz channel spacing

Physical	
Dimensions (inc rechargable battery)	113 x 88 x 80mm Rugged aluminium enclosure
Weight base unit	750g

Power	
DC input	2.5-4.5V reverse polarity protected
Power consumption	(TBA) depending on mode
Endurance	30 days

Environment	
Temperature range	-20 to +50 deg C (operating)
Sealing	IP67

Accessories supplied	
Primary 'C' cell battery pack	NUGBATBKC
1 x antenna	AP001453 (868MHz)
1 x DC power cable	(with power adapter to support 3-18v supply)
1 x trip wire	
1 x handbook	
1 x quick reference guide	

Options	
1 x rechargeable battery pack	NUGBATBKLI
External sensor extension cable	NUGSENEX2
External sensor hub	NUGSENHUB
External long range PIR sensor	*
External seismic/geophone sensor	*
External magnetic sensor	*
External output switch unit	NUGSENSW
Dual charger	NUGDCHRGR

Product Code:

NUGBATBKLI	
NUGBK-160	160 for low VHF band unit
NUGBK-868	868MHz ISM band unit

* Starred items also available from Cobham Tactical Communications and Surveillance, Waterlooville

Netstream IP Solutions

Urban Surveillance Mobile and Fixed Infrastructure

Introduction to Cobham Surveillance NET-IP products

Cobham has designed a range of products with Cobham technology at their core (under the common name of NET–IP) that allow the secure transmission of video data across IP networks. Distribution of high quality video data across real–world IP networks is non–trivial, because typically networks are restricted in terms of capacity and may contain security features that prevent such transmissions. The following brief guide is aimed at helping customers understand these issues and select appropriate products. For more detailed information, contact Cobham, and a training course can be arranged.

What is Streaming Video?

The transmission of compressed video across an IP network is often known as 'streaming' video and can vary from full frame rate high quality to reduced resolution low quality (often called 'thumbnails'). Streaming video connections can be point–to–point, going from one source to one receiver (uni–cast) or from one source to multiple receivers (multi–cast).

Private Networks v Public Networks

IP Networks can be either private networks, operated by a single organisation (usually described as Private LANs or WANs – Local Area or Wide Area Networks), or public networks, where the capacity is shared between many users (the internet or 3G networks are typical of public networks).

In a private network such as those operated by many police and security customers, the capacity available on the network is typically 10 to 100Mb/s and the network is rarely operated close to this capacity.

In a public network the capacity is usually purchased by the user on a 'pay per use' scheme, and the capacity is typically very limited and is contended in nature. The capacity on contended networks is both limited and variable. Normally, 200kb/s is available on average, but this might vary at times from 0kb/s to 500kb/s. This limited, but variable, capacity makes streaming video of any quality very difficult.

Uni-cast v Multi-cast

Private networks will often allow multi–cast transmissions, but this may require intervention of the network controller to configure routers and switches to allow multi–cast video streaming. Public networks, on the other hand, rarely allow multi–cast transmissions.

Cobham NET-IP Products

Cobham produces two types of IP products – IP video streamers and IP video receivers.

Net-IP Products

Cobham NET-IP video streamers

The Netstream video streaming device is suitable for private networks only, whilst NetLink is suitable for public and private networks alike.

Netstream

This can be installed as an option to some Cobham receivers, including the SOLO4 receiver, the Central Receiver and the new PRO–RX and NanoVue receiver products. In some receivers this is a software option, in others it requires the installation of dedicated hardware – contact Cobham for details. The Netstream option allows receivers to stream multi–cast high quality video onto IP networks. Because of high capacity and the multi–cast nature of the transmission, the Netstream option will only work on private networks. Typically, it requires 1.2 to 4.8Mb/s of capacity per video service streamed (depends on user RF transmission parameters). Netstream is most often used as a mechanism for connecting a remote RF reception point (mast or tower) to the user control centre (e.g. police station) via a private LAN network. The Netstream product adds very little delay to the RF video, maintains the selected AES security and causes no loss of quality.

NetLink

Cobham NetLink is a stand–alone boxed product that can connect to Cobham receivers and enables streaming video on to public or private networks. When connected to private networks, the NetLink generates a high quality multi–cast video stream. When connected to a public network, it produces a reduced frame rate thumbnail stream at a data rate matching that available on the network.

Cobham IP receivers

There are two main types of IP receiver products in Cobham's range: the PC based software IP receivers (also called 'players'); and hardware based IP receivers.

Netstream IP Solutions

Software players

We have two types of PC based software receivers – NETSWDR and NETEPLAY. The first is a standard PC decoder that presents video in a window on the PC. It can be used with multi–service streams and has built in AES decryption for secure operation. The NETSWDR also has a basic option for recoding and playing from file. The NETEPLAY is the software decoder and control application that accompanies the NetLink IP Streamer described above. The NETEPLAY can be used to decode and play streams in a window on the PC – playing from files of decoded live and full frame rate streams, as well as thumbnails. The NETEPLAY software incorporates sophisticated tools for trigger analysis, programming remote recording events, file transfer and even remote PTZ.

Hardware receiver

For those who do not wish to view the IP stream on a PC platform, but instead want to view the video on a traditional video monitor, Cobham produces the NETIPHW hardware decoder (and the NETIPHW2 additional 2 channel version). This 19" rack device will decode video and audio streams back to composite PAL or NTSC for viewing on traditional video monitors. More detail on NETIPHW can be found opposite.

Note: it cannot be used with NetLink.

IP Products

IP Hardware Decoder

The IP Hardware Decoder from Cobham is a professional digital video decoder designed to receive multicast audio/video streams from Ethernet networks and output decoded video in composite and S–Video formats, as well as stereo audio. The IP decoder is designed to be used with Netstream and other Cobham streaming video products, such as the CRX Central Receiver.

The NETIPHW2 incorporates two decoders in one chassis, whilst the NETIPHW incorporates one decoder in one chassis. The unit decodes Ethernet network video streams back to video, for connection to monitoring equipment in control room facilities. The IP Hardware Decoder incorporates low delay decoding technology and built–in buffering to remove network jitter, as well as optional AES decryption for security.

The IP Hardware Decoder complements the Cobham SOLO4 and SOLO2 product range, which enable the user to build wireless digital microwave video systems. The standard SOLO4 and SOLO2 Encoder/Transmitter and Receiver/Decoder products have been designed to provide rugged point–to–point links for high quality full frame rate video and audio, even in non–line of sight and urban environments.

Features:

- Ethernet or RS232 control
- Internal AES128 or 256 encryption.

Net-IP Decoder Hardware

Specification:

Input	
DS	4 pin Lemo
Ethernet	RJ45
RS232	3 pin Lemo

Output	
Composite Video	BNC (2 x on NETIPHW2)
S-Video	S-Video Connector (2 x on NETIPHW2)
Audio	5 pin Lemo (2 x on NETIPHW2)

Ethernet	
Format	10/100BaseT

Video	
Line Standard	PAL/NTSC
Resolution	704, 528, 480, 352
Coding Mode	MPEG2 or MPEG4
Delay	150ms to 1sec depending on mode
Frame Rate	Full/Half/Quarter/Eighth (optional)

Audio	
Line Level Output	Phono
Sample Rate	32KHz, 16KHz, 8KHz
Bits per Sample	12 or 8 bit

Data Interface	
RS232 Data Output	1k2 to 115k2 baud switchable

Encryption	
Format	ABS (standard) AES128/256 (optional)

Control	
Interfaces	RS232 or Ethernet

Physical	
Dimension	19" Rack 1RU height
Weight	3kg

Power	
DC Input	11-13V
AC	When using adaptor supplied

Environment	
Temperature Range	-10 to +50 deg C

Product Code:

NETIPHW
NETIPHW2

DUO IP Radio

Antennas shown are for illustration only.

The DUO range of IP radios from Cobham is a unique range of point–to–point bi–directional single frequency COFDM radios. Offering the same robust performance and range as the established SOLO4 solutions, but with the added advantage of bi–directionality, they feature Cobham technology at their core.

The DUO radio system offers a wireless duplex Ethernet link alongside a one way low latency video link; with exceptional performance in mobile and urban environments. The DUO radio has excellent spectral efficiency and is available in a variety of frequency bands to suit all applications.

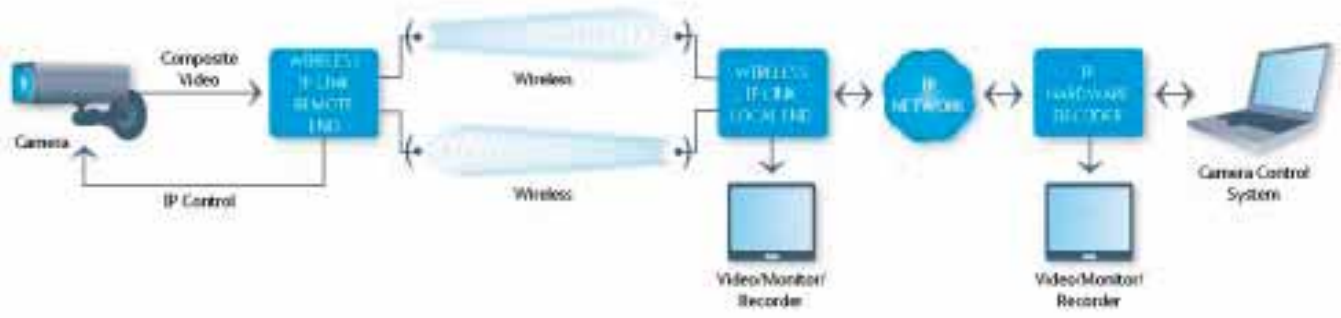
Equipped with Ethernet and RS485 interfaces as standard, the DUO radio can be upgraded with video and audio interfaces for direct connection of conventional video solutions. Security of the transmission is ensured by the optional AES128/256 encryption system.

The standard 1W DUO radio system offers ranges in excess of 20km where line of sight can be achieved, and greater than 1000m of range is possible in typical urban environments.

The DUO radio system is supplied in a rugged waterproof chassis, designed specifically for permanent mast mounting. Its bi–directional nature system makes it ideal for use in the following applications:

- Control of remote vehicles such as Unmanned Ground Vehicles, Unmanned Surface Vehicles and Unmanned Aerial Vehicles
- Surveillance from remote cameras requiring PTZ, particularly IP cameras
- Rugged IP links in mobile applications such as between command vehicles.

Typical Application:



Specification:

Interfaces	
Antenna 1	TNC
Antenna 2	TNC
Ethernet I/O	4-Way Amphenol Socket
RS485/ RS232 I/O	19-Way Amphenol Socket
Audio/Video	10-Way Amphenol Socket
Power	2-Way Amphenol Socket

RF	
Frequency Bands	2170 to 2500MHz,1000 to 1500MHz
Power	1W (100mW optional)
Power Control	30dB
Tuning Steps	250KHz

Modulation	
Bandwidth	2.5MHz
FEC	2/3
Modulation Forward Link	QPSK
Modulation Return Link	BPSK
Sensitivity Forward Link	-95 to -102dBm (mode)
Sensitivity Return Link	-97 to -101dBm (mode)

Ethernet	
Physical	100 BaseT
Data Rate Forward Link	3.6Mb/s in 16QAM 2/3 2.7Mb/s 8PSK 2/3 1.8Mb/s QPSK 2/3 900Kb/s QSK 13
Data Rate Return Link	80kb/s or 160kb/s selectable
Protocols	ARP, UDP control, Ping, TFTP upgrade IP and ICMP protocols between the radios MPEG over IP Encapsulation (UDP multicast + SAP)
Delay	15ms (Minimum in 16QAM)

Video I/O (option)	
Line Standard	PAL/NTSC
Resolution	704, 528, 480, 352
Coding Mode	MPEG2 or MPEG4
Delay	60ms to 0.5 sec depending on mode
Frame Rate	Full/Half/Quarter/Eighth (optional)

Audio I/O (option)	
Input	Line Level or Microphone
Sample Rate	32KHz, 16KHz, 8KHz switchable
Bits per Sample	12 or 8 bit switchable

Data Interface	
RS485 Data I/O	1K2 to 115K6 baud switchable

Encryption	
Format	ABS 32 bit as standard AES128/256 selectable (optional)

Control	
RS232 Local Control	9K6 Control Port
Remote Control Ethernet capability	Ethernet control with comprehensive diagnostic

Physical	
Dimension	L 260mm, W 194mm, H 57mm
Weight	2.5Kg

Power	
DC input	11.5 to 14V Reverse Polarity Protected
Power Consumption	16W (100mw no AV) 24 to 29W 1W with AV option

Environment	
Temperature Range	-20 to +50 deg C
Case	Waterproof Robust Enclosure

Product Code:

DUOIP1W-P-034047	DUOIP1W-R-034047
DUOIP1W-P-115140	DUOIP1W-R-115140
DUOIP1W-P-217250	DUOIP1W-R-217250
DUOIP1W-P-450500	DUOIP1W-R-450500
DUOIP1W-P-550600	DUOIP1W-R-550600
Denotes P= Plain, R=Robust (Phase 2)	

Options:

DUO-AVI-UP
DUO-AVO-UP
DUOIP100mW-217250
DUOIP1W-115140
DUOIP1W-217250
DUOIP1W-450500
DUOIP1W-P-034047
DUOIP1W-P-115140
DUOIP1W-P-217250
DUOIP1W-P-440500
DUOIP1W-P-550600
DUOIP1W-R-034047
DUOIP1W-R-115140
DUOIP1W-R-217250
DUOIP1W-R-440500
DUOIP1W-R-550600

SOLO – LDR Transmitter

The LDR (Low Data Rate) transmitter is a long–range digital video transmitter with Cobham technology at its core. The LDR transmitter sends informational quality video at reduced frame rates, compressed to very low data rates (typically 30kb/s), to an LDR receiver. This high level of compression and reduced data rate means that the LDR transmitter can send images over very long distances. The LDR transmitter occupies at least 50kHz of bandwidth, and can therefore be used more easily at UHF frequencies. Housed in a robust, water sealed enclosure and consuming only 3W, the LDR transmitter is ideal for long–term outdoor deployments.

Security is ensured with optional AES128/256 bit encryption.

The LDR transmitter is available in a variety of frequency bands from 300MHz to 1GHz, other frequencies are available on request.

The LDR transmitter will transmit images in a non–line of sight environment up to 2km, and line of sight to 20km depending on mode and frequency – further range can be achieved with the optional clip–on booster PA.

Specification:

Input	
Composite Video	Amphenol
RS232 Control	Amphenol
Power	Amphenol

Output	
RF Output	TNC

RF	
Frequency Bands	902 to 905MHz, 868 to 870MHz, 457 to 458MHz (others on request)
Power	100mW
Power Control	30dB in 1dB steps
Tuning Steps	12KHz

Modulation	
Bandwidths	50, 75, 100 or 125KHz selectable
Type	COFDM

Video	
Line Standard	PAL/NTSC
Resolution	SIF (352 * 288) QSIF (176 * 144)
Coding Mode	MPEG4
Delay	1 to 1.5 second
Frame Rate	12, 5 or 2 frames/s

Encryption	
Format	AES128/256 Selectable (optional)

Control	
Remote Control	RS232 Control from PC GUI Application
Local Control	Front Panel 8 channel select, RF on/off, Range mode, Lock, Alarm

Physical	
Dimension	L 150mm, W 120mm, H 35mm
Sealing	IP67

Power	
DC input	10 to 16V Reverse Polarity Protected
Power Consumption	3.5W

Environment	
Temperature Range	-20 to +60 deg C

Product Code:

LDRTX-090090	
LDRTX-086087	
LDRTX-045045	
AES256TX	AES Encryption
AES128TX	AES Encryption

SOLO – LDR Receiver

The LDR (Low Data Rate) system is a digital video transmission system from Cobham. Designed to operate over very long ranges, it features Cobham technology at its core.

The LDR receiver picks up the informational quality video sent by the LDR transmitter at reduced frame rates. The high level of compression and reduced data rate means that the images can be sent over great distances.

Narrowband digital transmissions – occupying as little as 50KHz of bandwidth and therefore more easily used at UHF frequencies – are sent over the system. The LDR receiver is available in a variety of frequency bands from 300MHz to 1GHz – other frequencies are available on request. Security is ensured with optional AES128/256 bit encryption.

Housed in a robust, water–sealed enclosure and consuming only 3W, the LDR receiver is ideal for long term outdoor deployments.

The LDR system will transmit images in a non line of sight environment up to 2km, and line of sight to 20km depending on mode and frequency, further range can be achieved with the optional clip–on booster PA.

Specification:

Output	
Composite Video	Amphenol

Input	
RF Input 1 and 2	TNC
RS232 Control	Amphenol
Power	Amphenol

RF	
Frequency Bands	902 to 905MHz, 868 to 870MHz, 457 to 458MHz (others on request)
Receive Sensitivity	-112 to -118 dBm
Tuning Steps	12KHz

Modulation	
Bandwidths	50, 75, 100 or 125KHz selectable
Type	COFDM, QPSK and 16QAM

Video	
Line Standard	PAL/NTSC
Resolution	SIF (352 * 288) QSIF (176 * 144)
Coding Mode	MPEG4
Delay	1 to 1.5 second end-to-end
Frame Rate	12, 5 or 2 frames/s
Decryption Format	AES128/256 selectable (optional)

Control	
Remote Control	RS232 Control from PC GUI Application
Local Control	Front Panel 8 channel select, RF On/Off, Range mode, Lock, Alarm

Physical	
Dimension	L 150mm, W 120mm, H 35mm
Sealing	IP67

Power	
D.C Input	10 to 16V Reverse Polarity Protected
Power Consumption	3.5W

Environment	
Temperature Range	-20 to +60 deg C

Product Code:

LDRRX-090090
LDRRX-086087
LDRRX-045045
AES256RX
AES128RX

SOLO4 – Audio and Telemetry Transmitter

The SOLO4 Audio and Telemetry Transmitter from Cobham is a COFDM transmitter, designed specifically for the transmission of audio and telemetry data. The SOLO4 Audio and Telemetry Transmitter has Cobham technology at its core and can be configured into different user selectable bandwidths, to satisfy a variety of requirements. Bandwidths from 25 kHz to 125 kHz are available offering user capacity from 14 to 146kb/s. This capacity can be shared between audio and user RS232 telemetry data, in any combination. Wider bandwidths are available on request.

The SOLO4 Audio and Telemetry Transmitter employs a unique narrow band COFDM modulation and will transmit telemetry data and audio in a non–line of sight environment up to 5km, depending on mode and frequency.

The SOLO4 Audio and Telemetry Transmitter is typically employed to provide talk back and also telemetry data for PTZ control in Cobham wireless video systems, especially mobile systems.

Security is ensured with AES128/256 bit encryption subject to export controls.

The SOLO4 Audio and Telemetry Transmitter can also be connected to Cobham IP solutions to create rugged wireless IP Bridge applications.

Supplied in a rugged, lightweight weather proof aluminium chassis, the SOLO4 Audio and Telemetry Transmitter can be used in body–worn applications, or prolonged outdoor deployments.

Specification:

Input

Audio	5 pin OB Lemo
GPIO	16 pin Hirose
RS232 Data	16 pin Hirose
RS232 Control	16 pin Hirose
Power	4 pin OB Lemo

Output

RF Out	SMA

RF

Frequency Bands	902.1 to 903.6MHz 920 to 928MHz 868 to 870MHz 458.5 to 459.5MHz (others available)
Power	100mW
Power Control	30dB in 1dB steps
Tuning Steps	12.5kHz

Modulation

Bandwidth	75 to 125kHz (A model only) 25 to 125kHz
Carriers	99
Modulation	QPSK or 16QAM
FEC	1/2

Settings

Channel Spacing	25kHz	50kHz	75kHz	100kHz	125kHz
Bandwidth	20kHz	40kHz	60kHz	80kHz	100kHz
Bitrate QPSK	14kb/s	29kb/s	44kb/s	58kb/s	73kb/s
16QAM	28kb/s	58kb/s	88kb/s	116kb/s	146kb/s

Audio (A model only)

Input	Line Level or Microphone
Sample Rate	8kHz
Bits per Sample	24kbit (Toll) or 32kbit (Phone) Quality
Algorithm	G726

Encryption

Format	AES128/256 (optional)

Data Interface

Format	RS232
Baud Rate	1200, 2400, 4800, 9600, 19200, 38400, 57600 or 115200 baud
Parity	None, Even, Odd switchable
Flow Control	XON/XOFF (optional)
IP Interface	RS232 style interface for IP Card

Control

Remote Control	RS232 Control from PC GUI Application
Local Control	Front Panel 8 channel select, RF on/off, Range mode, Lock, Alarm

Physical

Dimension Base Unit	L 102mm, W 71mm, H 22mm
Weight Base Unit	350g

Power

DC Input	5.9 to 16V Reverse Polarity Protected
Power Consumption	2.4 to 3W depending on mode

Environment

Temperature Range	-20 to +70 deg C

Accessories Supplied

1 x LPRS Antenna
1 x SOLO 12V DC Power Lead Lemo-wire 2m
1 x 3rd Generation Man-worn Control Cable
1 x Data Cable

Product Code:

TELTX-045045	458.5 to 459.5MHz
TELTX-086087	868 to 870MHz
TELTX-090090	902.1 to 903.6MHz
TELTXA-045045	458.5 to 459.5MHz
TELTXA-086087	868 to 870MHz
TELTXA-090090	902.1 to 903.6MHz
TELTXAUP	
TELTXR-045045	

SOLO4 – Audio and Telemetry Receiver

The SOLO4 Audio and Telemetry Receiver from Cobham is a diversity COFDM receiver, designed specifically for the reception of audio and telemetry data. The SOLO4 Audio and Telemetry Receiver has Cobham technology at its core and can be configured into different user selectable bandwidths, to satisfy a variety of requirements. Bandwidths from 25 kHz to 125 kHz are available offering user capacity from 14 to 146kb/s. This capacity can be shared between audio and user RS232 telemetry data, in any combination. Additional bandwidths will be available in the future.

The SOLO4 Audio and Telemetry Receiver employs diversity reception and a unique narrow band COFDM modulation.

It will receive telemetry data and audio in a non–line of sight environment up to 5km, depending on mode and frequency. The SOLO4 Audio and Telemetry Receiver is typically employed to provide talk back and also telemetry data for PTZ control in Cobham wireless video systems.

Security is ensured with AES128/256 bit encryption subject to export controls.

Supplied in a rugged, lightweight weather proof aluminium chassis, the SOLO4 Audio and Telemetry Receiver can be used in body–worn applications, or prolonged outdoor deployments.

Specification:

Input	
RF Input 1	SMA
RF Input 2	SMA
Power	4 pin OB Lemo

Output	
Audio 1	5 pin OB Lemo
Audio 2	5 pin OB Lemo
GPIO	16 pin Hirose
RS232 Data	16 pin Hirose
RS232 Control	16 pin Hirose

RF	
Frequency Bands	902.1 to 903.6MHz 868 to 870MHz 920 to 928MHz 458.5 to 459.5MHz (others available)
Input	Maximum Ratio Combining Diversity
Sensitivity	-110 to -120dBm depending on mode
Tuning Steps	12.5kHz

De-Modulation	
Bandwidth	75 to 125kHz (A model only) 25 to 125kHz
Carriers	99
Modulation	QPSK or 16QAM
FEC	1/2

Settings					
Channel Spacing	25kHz	50kHz	75kHz	100kHz	125kHz
Bandwidth	20kHz	40kHz	60kHz	80kHz	100kHz
Bitrate QPSK	14kb/s	29kb/s	44kb/s	58kb/s	73kb/s
16QAM	28kb/s	58kb/s	88kb/s	116kb/s	146kb/s

Audio (A model only)	
Output	Line Level or Headphone Level
Sample Rate	8kHz
Bits per Sample	24kbit (Toll) or 32kbit (Phone) Quality
Algorithm	G726

Encryption	
Format	AES128/256 (optional)

Data Interface	
Format	RS232
Baud Rate	1200, 2400, 4800, 9600, 19200, 38400, 57600 or 115200 baud
Parity	None, Even, Odd switchable
Flow Control	XON/XOFF (optional)
IP Interface	RS232 style interface for IP Card

Control	
Remote Control	RS232 Control from PC GUI Application
Local Control	Front Panel 8 channel select, RF on/off, Range mode, Lock, Alarm

Physical	
Dimension Base Unit	L 102mm, W 71mm, H 22mm
Weight Base Unit	350g

Power	
DC Input	5.9 to 16V Reverse Polarity Protected
Power Consumption	2.4W to 3W depending on mode

Environment	
Temperature Range	-20 to +70 deg C

Accessories Supplied
2 x LPRS Antenna
1 x SOLO 12V DC Power Lead Lemo-wire 2m
1 x 3rd Generation Man-worn Control Cable
1 x Telemetry Audio Out Cable OB(FGA) Lemo-phono 3m
1 x 3rd Generation Data Cable

Product Code:

TELRX-045045	458.5 to 459.5MHz
TELRX-086087	868 to 870MHz
TELRX-090090	902.1 to 903.6MHz
TELRXA-045045	458.5 to 459.5MHz
TELRXA-086087	868 to 870MHz
TELRXA-090090	902.1 to 903.6MHz
TELRXAUP	
TELRXR-045045	

SOLBTX – Broadcast Transmitter

The SOLO Broadcast Transmitter is a rugged digital video transmitter, ideal for sports and news link applications. A Cobham product with Cobham technology at its core, it is small and low powered enough to facilitate easy connection in any broadcast application.

The SOLO Broadcast Transmitter incorporates a high quality MPEG encoder, with a compliant DVB–T modulator and 100mW RF up–converter into a single low power consumption package. The unit is equipped with SDI (optional) and composite video interfaces, as well as ASI interfaces for easy connectivity to third party equipment.

The Transmitter is ideal for use in locations such as stadiums and studios, or mounted in vehicles at sports events.

Security of the transmission can be ensured using the optional embedded AES128/256 encryption.

Features:

- Fully featured 8/7/6MHz demodulation
- SDI video input (optional)
- High quality video encoder
- Low delay
- ASI input and output
- 100mW output power.

Specification:

Input	
Video	BNC
Stereo Balanced Audio	5 way OB Lemo
RS232 Control	3 way OB Lemo
Power	4 way OB Lemo
ASI In	SMB

Output	
RF Output	SMA
ASI Out	SMB

RF	
Frequency Bands	2.0 to 2.50GHz
Power	100mW
Tuning Steps	250KHz

Modulation	
DVB-T Bandwidth	8/7/6MHz
DVB-T Guard	1/32, 1/16, 1/8, 1/4
DVB-T FEC	1/2, 2/3, 3/4, 5/6, 7/8
DVB-T Modulation	QPSK, 16QAM, 64QAM
Sensitivity	-95dB plus

Video	
Line Standard	PAL/NTSC
Video Input Format	SDI (optional) or Composite
Resolution	720 (others selectable)
Coding Mode	MPEG
Delay	80ms

ASI	
Mode	Byte mode

Audio	
Input	Balanced Audio (12dB clip) or MIC Level
Sample Rate	48KHz
Format	MPEG Audio 384Kb/s to 64Kb/s mono or stereo

Control	
Remote Control	RS232 Control from PC GUI Application

Physical	
Dimension	L 102mm, W 71mm, H 30mm
Weight Base Unit	350g

Power	
DC Input	6 to 16V Reverse Polarity Protected
Power Consumption	4 to 5W depending on mode

Environment	
Temperature Range	-10 to +50 deg C

Product Code:

SOLBTX-100150
SOLBTX-200250
SOLBTX-340370

SOLO – Broadcast Micro Transmitter

The Broadcast Micro Transmitter, a fully–featured COFDM digital video transmitter, is a Cobham product with Cobham technology at its core.

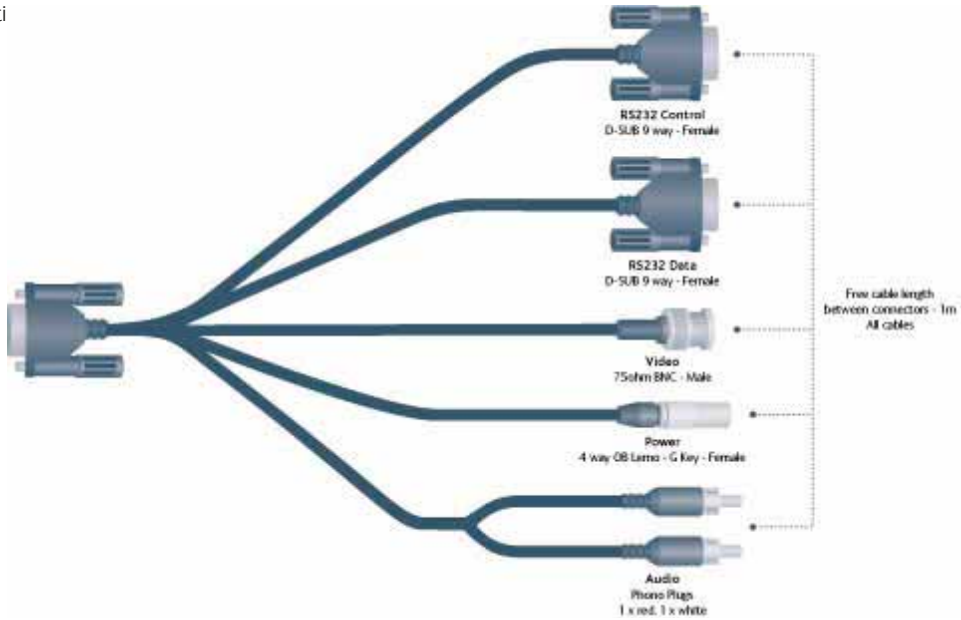
The unique small size and low power consumption of the Broadcast Micro Transmitter make it the product of choice for high mobility sporting applications, such as cycle racing, yachting and body–worn video applications.

The Broadcast Micro Transmitter employs MPEG encoding for excellent image quality retention, with an integral COFDM modulation. It is ideal for establishing rugged wireless video links in all environments including mobile and urban environments and offers a typical range of 750m.

With optional SDI video interfaces, the Broadcast Micro Transmitter can be used where the highest image quality preservation is required .

Features:

- Fully featured 8/7/6MHz demodulati
- SDI video input (optional)
- High quality video encoder
- Low delay
- 100mW output power.



CA0317 Break Out Cable

Specification:

Input	
SDI Video (option)	BNC
Composite Video	BNC
Stereo Balanced Audio	Phono
RS232 Control	Dtype
Power	4 way OB Lemo

Output	
RF Output	SMA

RF	
Frequency Bands	300 to 450MHz 1.0 to 1.5GHz 2.0 to 2.5GHz 4.5 to 5.0GHZ 5.5 to 6.0GHz
Power	100mW
Tuning Steps	250KHz

Modulation	
DVB-T Bandwidth	8/7/6MHz
DVB-T Guard	1/32, 1/16, 1/8, 1/4
DVB-T FEC	1/2, 2/3, 3/4, 5/6, 7/8
DVB-T Modulation	QPSK, 16QAM, 64QAM
Sensitivity	-95dB plus

Video	
Line Standard	PAL/NTSC
Video Input Format	SDI (optional) or Composite
Resolution	720 (others selectable)
Coding Mode	MPEG
Delay	43-120ms (mode dependant)

Audio	
Input level	Line Level or microphone switchable -2dBu Max input
Sample Rate	48KHz
Format	MPEG Audio 384Kb/s to 64Kb/s mono or stereo

Control	
Remote Control	RS232 Control from PC GUI Application

Physical	
Dimension	L 89mm, W 49mm, H 11mm
Weight Base Unit	100g (target)

Power	
DC Input	5.9 to 15V Reverse Polarity Protected
Power Consumption	3.5 to 4.5W depending on mode

Environment	
Temperature Range	-10 to +50 deg C

Product Code:

SOLMTX-200250	OPTION TX-SDI

SOLO4 – Audio Transmitter

The SOLO Audio Link Transmitter is a COFDM digital audio transmitter, designed specifically for broadcast audio microwave applications.

The SOLO audio transmitter is supplied with microphone or line level audio inputs, and transmission of 1 stereo pair of audio services. Audio is compressed for transmission using a choice of possible compression types including MPEG audio Layer 2 or Nicam. The SOLAUD transmitter is supplied with a user data RS232 channel for transmission of user information such as GPS coordinates.

Security is ensured with optional in AES128/256 Encryption.

The SOLO4 audio transmitter will transmit audio in a non line of sight environment up to 1Km depending on mode and frequency; further range can be achieved with a booster PA.

Specification:

Inputs	
Audio 1	Phono (break out cable)
Audio 2	Phono (break out cable)
RS232 Control	Dtype (break out cable)
RS232 Data	Dtype (break out cable)
Power	Lemo 4 pin (break out cable)

Output	
RF Out	SMA

RF	
Power	100mW (14dBm low power mode)
Tuning Range	5.5 to 6GHz 4.5 to 5GHz 2.0 to 2.5GHz 1.0 to 1.5GHz (model dependant) 300 – 450MHz
Tuning Steps	250KHz

Modulation	
Transmit Modes Narrowband:	
Bandwidth	1.25MHz (625KHz optional)
FEC	2/3, 1/3
Modulation	BPSK, QPSK or 16QAM

Audio	
Input	Line Level or Microphone switchable -2dBu Max input level
Audio Encoding MPEG Layer 1: Sample Rate	32KHz 384Kb/s to 64kb/s
Audio Encoding NICAM Style: Sample Rate	32KHz, 16KHz, 8KHz switchable
Bits per sample	12 or 8 bit switchable
End to end delay	40-120ms
Bits per sample	12 or 8 bit switchable

Data Interface	
RS232 Data Input	1k2 to 115K2 baud switchable

Encryption	
Format	ABS Encryption 32 bit AES128/256 (optional)

Control	
Control Interface	RS232 Control from PC GUI Application
Front Panel	None supplied, future external plug in RS232 controller (field gun)

Physical	
Dimension	L 86mm, W 49mm, H 11mm (main chassis)
Weight	70g

Power	
DC Input	5.9V to 16V Reverse Polarity Protected
Power Consumption	Normal consumption 3.6W for 100mW out

Environment	
Temperature Range	-15 to +60 °C
Vibration	Tested with 15g shock and Random with sine vibration 3g Results will depend on chassis installation

Product Code:

SOLAUD-550600
SOLAUD-450500
SOLAUD-200250
SOLAUD-100150
SOLAUD-030045

SOLBRXD – Broadcast Receiver Decoder

The SOLO Broadcast Receiver Decoder is an economical, high–quality diversity input digital video receiver. A Cobham product with Cobham technology at its core, the SOLO Broadcast Receiver Decoder supports interoperation with other manufacturers' DVB–T systems and is able to receive the Cobham transmitter family.

The SOLO Broadcast Receiver incorporates a fully compliant DVB–T COFDM diversity demodulator, with a compliant MPEG2 decoder, and high quality interfaces such as SDE video. The SOLO Broadcast Receiver is equipped with two antenna inputs with external down–converters to allow antenna placement remote from the receiver housing. The SOLO Broadcast Receiver operates a maximum ratio combining digital diversity; ensuring video is recovered free from distortions typically associated with fading and multipath.

The SOLO Broadcast Receiver has comprehensive on–screen display diagnostic capability to show link quality and spectrum, enabling users to optimise transmission performance.

The SOLO Broadcast Receiver is equipped with video, two voice and data channels, and is designed for easy integration into command vehicle, briefcase or central receive applications.

The SOLO Broadcast Receiver is ideal for use in locations such as stadiums and studios, or as a film assist receiver on film set locations.

Features:

- Fully featured 8/7/6MHz demodulation
- ASI and SDI interfaces
- Maximum ratio combining antenna diversity for fade and multipath elimination
- Comprehensive on–screen display (OSD) diagnostics for link analysis, including spectrum analyser
- External down–converters for convenient antenna placement
- Internal AES128/256 bit encryption (option)
- Very low delay video operation for real time applications.

Specification:

Down-converters	
RF In	TNC
UHF Out	TNC

Input	
UHF Input 1	TNC
UHF Input 2	TNC
Power	4 pin OB Lemo

Output	
SDI Video	BNC
Composite Video	BNC
Stereo Line Level Audio	Lemo
Chaining Interface	Lemo
RS232 Data	Lemo
RS232 Control	Lemo
ASI Out	BNC

RF	
Frequency Bands	70 to 850MHz
With additional Down-Converter	5.62 to 5.9GHz, 4.5 to 5GHz with DCB450500 2 to 2.5GHz with DCB200250
Tuning Steps	250KHz

Modulation	
DVB-T Bandwidth	8/7/6MHz
DVB-T Guard	1/32, 1/16, 1/8, 1/4
DVB-T FEC	1/2, 2/3, 3/4, 5/6
DVB-T Modulation	QPSK, 16QAM, 64QAM
Sensitivity	-95dB plus

Video	
Line Standard	PAL/NTSC
Resolution	704, 528, 480, 352
Coding Mode	MPEG 4:2:2 or 4:2:0
Delay	80ms

Audio	
Output	Line Level
Sample Rate	48KHz
Format	MPEG Audio 384Kb/s to 64Kb/s mono or stereo

Data Interface	
RS232 Data Output	1K2 to 115K2 baud switchable

Control	
Remote Control	RS232 Control from PC GUI Application
Local Control	Front Panel 8 channel select, RF on/off, Range mode, Lock, Alarm
On Screen Display	Spectrum, RX SNR, RX Power

Physical	
Dimension Base Unit	L 200mm, W 152mm, H 50mm
Down-converter	L 102mm, W 100mm, H 35mm
Weight Base Unit	2.2kg
Down-converter	300g

Power	
DC Input	9 to 16V Reverse Polarity Protected
Power Consumption	12W depending on mode

Environment	
Temperature Range	-10 to +50 deg C

Accessories Supplied
1 x BNC Video Lead 3m
1 x PSU12 Power Supply
1 x Control Cable
1 x Audio Out Cable OB(FGA) Lemo-phono 3m
1 x Data Cable (optional)

Product Code:

SOLBRXD

SOLO2 – Broadcast Hand Held Receiver

The SOLO2 Broadcast Hand Held Receiver with Cobham technology at its core – is a fully portable digital diversity receiver.

It incorporates a high resolution, daylight viewable screen, with a diversity digital receiver, antennae and clip–on batteries, into a robust, lightweight housing. This makes it ideal for use as a confidence or monitoring receiver at outside broadcast and sports events, or as a directors' viewing tool.

The SOLO2 Broadcast Hand Held Receiver is supplied with two long life batteries, for rapid interchange, and also a battery charger. With its comprehensive on–screen display diagnostic capability to show link quality and spectrum it enables users to optimise transmission performance, making it ideal for use in locations such as stadiums and studios, or as a film assist receiver on film set locations.

Features:

- Fully featured 8/7/6MHz demodulation
- Interoperable with other manufacturers
- Maximum ratio combining antenna diversity
- High Resolution Display
- Easy use menu display for channel changing.

Specification:

Input	
RF Input 1	Quick Lock
RF Input 2	Quick Lock
Power	Lemo

Output	
Composite Video I/O	BNC
Stereo Line Level Audio	Lemo
RS232 Control	Lemo

RF	
Frequency Bands	2.20 to 2.55GHz
Tuning Steps	250KHz

Modulation	
DVB-T Bandwidth	8/7/6MHz
DVB-T Guard	1/32, 1/16, 1/8, 1/4
DVB-T FEC	1/2, 2/3, 3/4, 5/6
DVB-T Modulation	QPSK, 16QAM, 64QAM
Sensitivity	-95dB plus

Video	
Line Standard	PAL/NTSC
Resolution	704, 528, 480, 352
Coding Mode	MPEG2
Delay	80ms
Test Pattern Generation	Yes

Screen	
Resolution	800*480

Audio	
Output	Line Level
Sample Rate	32KHz
Format	MPEG Audio 384Kb/s to 64Kb/s mono or stereo

Control	
Remote Control	RS232 Control from PC GUI Application
Local Control	Touch buttons for on screen menu
On Screen Display	Spectrum, RX SNR, RX Power

Physical	
Dimension	L 300mm, W 50mm, H 150mm
Weight Base Unit	3kg

Power	
DC Input	11 to 13V Reverse Polarity Protected
Power Consumption	15W depending on mode

Environment	
Temperature Range	-10 to +50 deg C

Accessories Supplied
2 x Antenna
2 x Battery
1 x Battery Charger
1 x Combined Audio/Control Cable
1 x Neck Strap

Product Code:

SOLHHRX-100150
SOLHHRX-150200
SOLHHRX-200250
SOLHHRX-450500

SOLO – Accessories

Cobham Down Converters

All Cobham receivers operating at frequencies above 850MHz require a down converter. Cobham block down converters sit in line between the antenna and the receiver, and draw power remotely from the receiver. Down converters are supplied in high and low gain variants and this dictates how much cable they can drive (typically 10–15m for the low gain and 50–100m for high gain. For precise cable run length calculations contact Cobham. Cobham down converters offer excellent low noise performance, and are designed t for permanent outdoor deployment, a variety of mounting kits are available. A separate data sheet is available on request for those users requiring detailed information regarding, noise performance, gain or LO frequencies.

Cobham Barrel Down-converter

The Cobham barrel down–converter is designed for permanent outdoor installations on the base of the receive antenna. The down–converter will successfully drive 10m of cable with down–converted UHF signal with no loss of performance.

Product Code:

DCB-100150	Weight 0.2Kg, Size 85mm x 45mm Dia
DCB-150200	Weight 0.2Kg, Size 85mm x 45mm Dia
DCB-200250	Weight 0.2Kg, Size 85mm x 45mm Dia
DCB-250300	Weight 0.2Kg, Size 85mm x 45mm Dia
DCB-300350	Weight 0.2Kg, Size 85mm x 45mm Dia
DCB-340370	Weight 0.2Kg, Size 85mm x 45mm Dia
DCB-450500	Weight 0.2Kg, Size 85mm x 45mm Dia
DCB-550600	Weight 0.2Kg, Size 85mm x 45mm Dia

Cobham High Gain Barrel Down-converter

The Cobham high gain barrel down–converter is designed for permanent outdoor installations on the base of the receive antenna. The down–converter will successfully drive 50–100m of cable with down–converted UHF signal with no loss of performance.

Product Code:

DCBX-100150	Weight 0.2Kg, Size 85mm x 45mm Dia
DCBX-150200	Weight 0.2Kg, Size 85mm x 45mm Dia
DCBX-200250	Weight 0.2Kg, Size 85mm x 45mm Dia
DCBX-250300	Weight 0.2Kg, Size 85mm x 45mm Dia
DCBX-300350	Weight 0.2Kg, Size 85mm x 45mm Dia
DCBX-340370	Weight 0.2Kg, Size 85mm x 45mm Dia
DCBX-450500	Weight 0.2Kg, Size 85mm x 45mm Dia
DCBX-550600	Weight 0.2Kg, Size 85mm x 45mm Dia

Cobham Legacy Square Down-converter

The Cobham square down–converter is designed for permanent outdoor installations on the base of the receive antenna. The down–converter will successfully drive 10m of cable with down–converted UHF signal with no loss of performance. This square style of down converter is being phased out and replaced by the barrel style.

Product Code:

DC-562590	Weight 0.52Kg, Size 130x100x35mm
DC-488515	Weight 0.52Kg, Size 130x100x35mm
DC-310340	Weight 0.52Kg, Size 130x100x35mm
DC-225265	Weight 0.52Kg, Size 130x100x35mm
DC-100140	Weight 0.52Kg, Size 130x100x35mm

Cobham Legacy Square High Gain Down-converter

The Cobham square high gain down–converter is designed for permanent outdoor installations on the base of the receive antenna. The down–converter will successfully drive 50–100m of cable with down–converted UHF signal with no loss of performance. This square style of high gain down converter is being phased out and replaced by the barrel style.

Product Code:

DCX-562590	Weight 0.52Kg, Size 130x100x35mm
DCX-488515	Weight 0.52Kg, Size 130x100x35mm
DCX-310340	Weight 0.52Kg, Size 130x100x35mm
DCX-225265	Weight 0.52Kg, Size 130x100x35mm
DCX-100140	Weight 0.52Kg, Size 130x100x35mm

Cobham produce a broad range of antennas and accessories to complement its range of transmission equipment. The items below are a selection of the more popular. For details of other antenna types including covert patches, contact Cobham directly.

180 deg Directional Antenna

Small compact directional antenna, specifically designed for use with SOLO Transmitter, including short interconnecting cable terminated to suit TX.

Product Code:
ANT12-115140
ANT12-150180
ANT12-200270
ANT12-330370
ANT14-560590

Omni Directional Antenna

Omni–directional antenna 2dbi. Suitable for use with either transmitter or receiver. TNC based mounted connection.

Product Code:
ANT2-115140
ANT2-165300
ANT2-200250
ANT2-228400

Co–linear Omni Directional Antenna

Co–linear omni–directional antenna 4.5dbi. Suitable for use with either transmitter or receiver. TNC base mounted connection.

Product Code:	
ANT4-140170	ANT4-440500
ANT4-560590	
ANT4.5-115140	ANT4.5-200250
ANT4.5-300350	

Sector Directional Antenna

Directional antenna 12dbi. Suitable for use with either transmitter or receiver. TNC base mounted connection.

Product Code:
ANTBW-115126
ANTBW-126140
ANTBW-160170
ANTBW-228255
ANTBW-310350

Battery Pack for SOL4TX

Rechargeable battery pack, including interconnecting power cable, for use in conjunction with SOLO Transmitter.

Product Code:
SOLBAT
SOLBAT2

SOL4TX Harness Kit

Slim fit overt body harness suitable for use with SOLO or SOLO Transmitter.

Product Code:
MESHHAR
SOLHAR

Power Supply

AC input 100–240V. DC output 12V 3.0 Amp. Standard cable and connector. For use with SOLO2 or SOLO4 TX or RX unit.

Product Code:
PSU12/1
PSU12/2
PSU12/3
PSU12/4

Cables

A variety of standard cables are available for most applications.

For additional antenna solutions, contact your account manager.

SOLO – Transmission and Receiver Kit

Transmission and Receiver Kit supplied in a rugged compact case

The Cobham SOLO product range, with Cobham technology at its core, includes the Transmission and Receiver Kit briefcase. The kit is supplied with all the components needed for an easy deployment in any type of operation. The kit includes the SOLO4 Transmitter, SOLO4 Receiver and all the associated accessories, to enable use in any type of video microwave transmission. The entire SOLO Transmission and Receiver Kit is housed in a rugged compact case for easy storage and deployment.

Each SOLO Transmission and Receiver Kit is supplied with the following items:

- SOLO4 100MW Transmitter
- SOLO4 Receiver
- SOLO 1 Watt Amplifier
- 2 x S or L Band Down–converters
- 3 x Omni Antennae
- 2 x Directional Antennae (packaged separately)
- 2 x AC Supply Adaptors
- 1 x DC Supply Cables
- Universal Interface Cables to support a variety of cameras and monitors
- 2 x 3m Cables from Down–converters to Receiver
- Rugged Compact Case
- Instruction Manual on website.

Features:

- General purpose Transmission and Receiver Kit
- Digital transmitter for high quality video and audio even in highly multipath environments
- Full set of antennae to suit all missions.

Product Code:

SOL4TK-200250
SOL4TK-100150

CAMuPT – Micro Pan Tilt Camera

This Cobham CAMuPT camera is a unique miniature pan and tilt solution, suitable for umbilical connection to a NETNode IP Mesh radio. When connected, the user can enjoy full pan and tilt functionality, including 400 degree horizontal rotation, 270 degree vertical rotation and low light capability. The miniature CAMuPT has no zoom capability.

The CAMuPT camera has Cobham technology at its core and offers comprehensive capability. It can be controlled by the CAMHCTRL hand controller device. Its rugged weather–proof construction enables deployment in a range of surveillance scenarios – when coupled to the IP Mesh Radio, it is ideal for use in covert hides or concealment in undergrowth. The base of the camera has magnetic inserts, through holes and tripod fittings, giving the user a range of mounting options.

CAMuPT Camera
(actual size)

Specification:

Interfaces

Video, power and control	Lemo

PT

PT horizontal	400 degree continuous
PT vertical	270 degree
PT speed	5 to 100 degree/s
Preset positions	0

Camera

Resolution	640 x 480 (>420 TVL)
Sensor	¼" CMOS
Sensitivity	0.2 Lux (full moon)
Signal to noise	>46dB
Zoom	None
Command protocol	VISCA on RS232

Physical

Size	L 96mm, H 56mm, W 52mm including base
Weight	250g
Connector	8 Pin Lemo 1B
DC input	6 -18V
Power consumed	1.8W (active), 1.2W (quiescent)
Base mount	Magnetic, Through hole and Tripod
Colour	Black anodised

Environment

Temperature range	-10 to 50 deg C
Sealing	IP66

Connector Type 6 Pin Lemo 1B:

1. Vin
2. Gnd
3. CVBS
4. VGnd
5. RS232 TX
6. RS232 RX
7. Y (not used)
8. C (not used)

Product Code:

CAMuPT-N	Micro Pan Tilt NTSC Camera
CAMuPT-P	Micro Pan Tilt PAL Camera

Hand Controller for CAMuPT Camera

CAMHCTRL - Hand Controller for CAMuPT (actual size)

The Cobham Hand Camera Controller is a miniature control solution, suitable for direct connection to Cobham camera solutions such as the CAMuPT, or for connection via wireless telemetry links.

The Hand Camera Controller has Cobham technology at its core and features a miniature thumb–operated joystick, offering pan and tilt camera control.

A rugged, lightweight solution suitable for rapid deployment operations, its joystick and camera connection are protected by weather proof covers when not in use..

Specification:

Interfaces	
Control and Power	Binder 712, 7 way socket

Control Protocol	
Physical	RS232 9K6 baud
Protocol	VISCA (sub set)

Physical	
Size	H 68mm, W 40mm
Weight	80g
Connector	Binder 712, 7 way socket
DC input	6-16V
Power consumed	0.25W
Colour	Black

Environment	
Temperature range	-10 to 50 deg C
Sealing	Splash proof

Product Code:

CAMHCTRL - Hand Controller for CAMuPT

Pin-hole Camera for SOLO4 transmitters

The Cobham range of miniature colour pin–hole cameras is supplied for use with the SOLO4 range of transmitters. With Cobham technology at their core, they are ideal for body–worn or covert concealment.

The PCAMMTX range (–N = NTSC, –P = PAL) is supplied with a CA381 cable suitable for direct connection to the SOLO4 Micro Transmitter.

The PCAMSTX range (–N = NTSC, –P = PAL) is supplied with a CA380 cable suitable for direct connection to the standard SOLO4 Transmitter range.

Specification:

Interfaces	
Video, power and control	6 pin Lemo

Camera	
Sensor	1/3" Sony SuperHAD Colour CCD
Resolution	PAL (-P variant) 500 * 582 NTSC (-N variant) 512 * 492
Lens	3.7mm
Sensitivity	0.5 Lux
Signal to noise	>48dB
Zoom	None

Physical	
Size	L 25mm, W 25mm
Weight	50g + cable
Connector	6 Pin Lemo 1B
DC input	12V
Power consumed	1.4W
Colour	Black

Environment	
Temperature range	-10 to 50 deg C

Connectors:

V.IN	Red	1
GND	Black	2 - Link to pin 4
VIDEO	Yellow	3
VID.GND	N/C	4
	N/C	5
	N/C	6

Product Code:

PCAMMTX-N	Pin-hole Covert Camera NTSC for Micro TX
PCAMMTX-P	Pin-hole Covert Camera PAL for Micro TX
PCAMSTX-N	Pin-hole Covert Camera NTSC for Standard TX
PCAMSTX-P	Pin-hole Covert Camera PAL for Standard TX

CAMuP-X – Pinhole Camera

Accessory camera for SOL4DCAM

Micro Camera with cable

The CAMuP–X is a rugged miniature camera accessory that can be connected directly to the Cobham SOL4DCAM deployable camera transmitter, or used stand alone.

The micro camera device incorporates a miniature system on a chip sensor, in a weather–proof package measuring just 21 x 12 x 12mm. Camera quality is in no way compromised by the size and produces 520 TVL, with excellent low light performance at 0.008 Lux.

Specification:

Camera	
Sensor:	1/3" CMOS
Resolution:	>520 TVL
Sensitivity:	<0.008 Lux
SNR:	>50dB
Pixels:	768(H) x 576(V) PAL 656(H) x 492(V) NTSC
Focal Length:	4mm
Field of View:	62 degrees
Aperture:	f2

Connector Type:
Binder 719 12 pin male on 30cm adaptor cable for connection to Drop camera

Physical	
Size	L 21mm, H 12mm, W 12mm
Weight	25g

Environment	
Sealing	IP65

Product Code:

CAMuP-P	PAL micro camera
CAMuP-N	NTSC micro camera

CAMPXX-X – Pinhole Camera

Accessory camera for SOL4DCAM

Pinhole Camera with 70mm lens

The CAMPXX–X are a range of four pin hole cameras that can be connected directly to the Cobham SOL4DCAM deployable camera transmitter, or used stand alone.

Each pin hole device incorporates a miniature system on a chip sensor, in a weather–proof package measuring just 43 x 12 x12mm. Camera quality is in no way compromised by the size and produces 520 TVL, with excellent low light performance at 0.008 Lux.

Specification:

Camera	
Sensor:	1/3" CMOS
Resolution:	>520 TVL
Sensitivity:	<0.008 Lux
SNR:	>50dB
Pixels:	768(H) x 576(V) PAL 656(H) x 492(V) NTSC
Lenses	15, 30, 45 and 70mm model dependant
Field of View:	18", 9", 6" and 4" respectively
Aperture:	f5.6, f11, f8 and f12 respectively

Connector Type:
Binder 719 3 pin male 1m adaptor cable to Binder 12 pin for connection to Drop camera

Physical	
Size	L 43mm, H 12mm, W 12mm + lens
Weight	75g

Environment	
Sealing	IP65

Product Code:

CAMP15-P	Camera with 15mm pinhole lens PAL
CAMP15-N	Camera with 15mm pinhole lens NTSC
CAMP30-P	Camera with 30mm pinhole lens PAL
CAMP30-N	Camera with 30mm pinhole lens NTSC
CAMP45-P	Camera with 45mm pinhole lens PAL
CAMP45-N	Camera with 45mm pinhole lens NTSC
CAMP70-P	Camera with 70mm pinhole lens PAL
CAMP70-N	Camera with 70mm pinhole lens NTSC

FCON – Field Controller

FCON Field Controller (actual size)

The Field Controller is designed to provide operators of Cobham equipment with a discrete and comprehensive controller, whilst avoiding the need to take a PC into the field.

The Field Controller has Cobham technology at its core and connects to Cobham equipment using a single cable, presenting the user with a clear menu structure for configuration. The menu system can be navigated and selections made using the buttons provided on the front panel of the Field Controller.

As well as acting as a portable controller, it can also act as a remote agent for the Cobham CryptoWizard application. In this mode, the Field Controller can be pre–loaded with encryption keys destined for different Cobham transmitters and receivers powered by Cobham technology. On connection to a target device the Field Controller will automatically update the encryption keys whilst logging the serial number, time and date of the update. The Field Controller therefore acts as a secure carriage mechanism for field management of encryption data.

Features:

- In line standalone controller
- Or USB to RS232 converter
- Remote client for CryptoWizard
- Controls transmitters and receivers with Cobham technology at their core.

Specification:

Connectors	
Unit Connector	Lemo
PC Connector	Lemo

Dimensions	
Length	110mm
Width	21mm
Depth	15mm
Weight	35g
Environmental	-10 to +50 deg

Power	
Consumption	20mA @ 12V
Internal battery	3 year life

Connection cables
CA0345 for SOLO4 TX and RX
CA0344 for Cobham Micro Transmitter

Unit Connector: EEB.0B.305.CLV

Pin 1.	RS232TX
Pin 2.	RS232RX
Pin 3.	GND
Pin 4.	VCC
Pin 5.	GPIO (unused)

PC Connector: EEB.0B.306.CLV

Pin 1.	Debug RS232TX
Pin 2.	Debug RS232RX
Pin 3.	GND
Pin 4.	VCC
Pin 5.	USB DP
Pin 6.	USB DM

Product Code:

FCON

500mW Booster Amplifer

SOLAMP500mW booster amplifier

The SOLAMP500mW product is a 500mW booster power amplifier designed specifically to mate with the Cobham SOLMTX Micro transmitter. It is available over the following frequency ranges, 1.0–1.5, 1.5–2.0 and 2.0–2.5GHz .

The convenient small size and low power consumption make it the ideal booster Power Amplifier for applications such as body worn or where space is a premium, but when additional range may be required.

Specification:

Input	
RF In	SMA
Input power	100mW (20dBm)

Output	
RF Out	SMA
Output power	500mW (27dBm)

RF	
Frequency Bands	1.00 to 1.50 GHz 1.50 to 2.00 GHz 2.00 to 2.50 GHz
Power In	100mW
Power Out	1W

Physical	
Base Unit Weight	150g

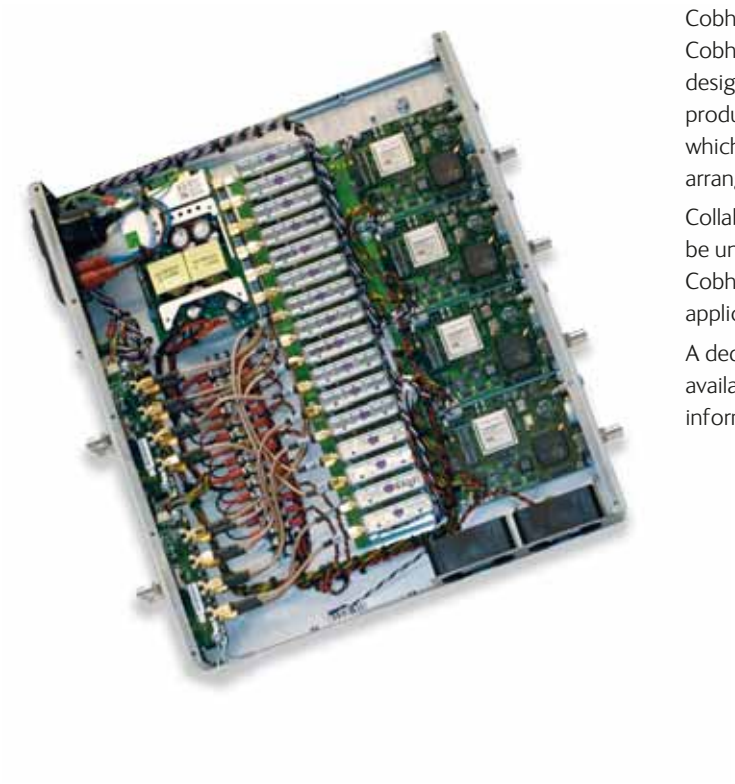
Power	
input voltage	11 to 14V
Power Consumption	4W typical

Environment	
Temperature Range	-10 to +50 deg C

Product Code:

SOLAMP500mW-200250	500mW booster PA for Micro Transmitter
SOLAMP500mW-150200	500mW booster PA for Micro Transmitter
SOLAMP500mW-100150	500mW booster PA for Micro Transmitter

SOLO – OEM and Bespoke Applications



OEM applications

Cobham can offer a range of PCB level product opportunities with Cobham technology at their core, for OEM applications. Standard designs such as those used in its range of SOLO2 and SOLO4 products can be offered, or unique design work can be undertaken which allows bespoke requirements for interfaces, power supply arrangements and form factor to be met.

Collaborative development programmes with customers can be undertaken to fulfil specific needs in the RF designs. The Cobham team have developed video solutions for UGV and UAV applications.

A dedicated website specifically for our OEM customers is available. Please talk to your Cobham account manager for information.

Bespoke applications

Bespoke products can also be offered to ensure optimal integration between standard technology building blocks.

Typical Cobham bespoke applications:

- Installation of a central receiver and integration into wired systems
- Installation of Cobham systems into special enclosures such as suitcases
- Site surveys and advice on installation of fixed infrastructure systems
- Applying the technology into new scenarios and environments
- Special testing, waterproofing and rugged enclosures
- Point to point wireless IP link equipment
- Relays and custom control solution for aircraft fitment
- Rebroadcast units to bring back video and audio TX from difficult environments.

Products are available to security users only, in licensed frequency bands. These products are not approved for use by unlicensed users.

Commercial products are available to unlicensed users – contact Cobham Tactical Communications and Surveillance direct for details.

All product specifications are subject to change without notice. Cobham Communications and Surveillance will not be liable for technical or editorial errors or omissions.

For further information on
Cobham Tactical Communications and Surveillance
products, please contact:

surveillance.ttl@cobham.com
(for Tracking, Tagging and Locating)

surveillance.video@cobham.com

surveillance.audio@cobham.com

surveillance.iss@cobham.com

www.cobham.com/tcs

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